

**DUPAGE COUNTY
STORMWATER
CERTIFICATION SUBMITTAL**



PROJECT SITE:

**St. Charles Road Bridge
Over Salt Creek
Village Park, DuPage County, Illinois**

PREPARED FOR:

Village of Villa Park
20 S. Ardmore Avenue
Villa Park, Illinois 60181

PREPARED BY:

V3 Companies
7325 Janes Avenue
Woodridge, Illinois 60517
630.724.9200

November 16, 2018

ST. CHARLES ROAD BRIDGE OVER SALT CREEK

VILLAGE OF VILLA PARK, DuPAGE COUNTY, ILLINOIS

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E. Correspondence

- Letter from the Village of Villa Park stating that the St. Charles Rd. Bridge is not a source of flood damage dated September 29, 2016.
- Letter from the City of Elmhurst stating that the St. Charles Rd. Bridge is not a source of flood damage dated September 29, 2016.

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Tab 1

Stormwater Management Permit Application



DUPAGE COUNTY STORMWATER MANAGEMENT CERTIFICATION APPLICATION (1/2)

1. Community and Status <input type="checkbox"/> Non <input type="checkbox"/> Partial <input checked="" type="checkbox"/> Complete	2. Date of Application	3. Stormwater Application No. <small>(to be assigned by community)</small> <u>PRSW 201801749</u>	4. DuPage County Tracking No.
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5. Applicant: Name: <u>Vydas Juskelis</u> Company Name: <u>Village of Villa Park</u> Address: <u>20 S. Ardmore Avenue</u> City, ST, Zip: <u>Villa Park, IL 60181</u> Phone: <u>630-834-8505</u> Email: <u>juskelis@invillapark.com</u>	6. Owner: Name: <u>Vydas Juskelis</u> Company Name: <u>Village of Villa Park</u> Address: <u>20 S. Ardmore Avenue</u> City, ST, Zip: <u>Villa Park, IL 60181</u> Phone: <u>630-834-8505</u> Email: <u>juskelis@invillapark.com</u>
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7. Description of Proposed Development: Replace St. Charles Road bridge superstructure and adjacent roadway approach pavement. Also install sheet piling around bridge piers for scour protection.

8. Location of Development: Address: <u>St. Charles Rd. over Salt Creek</u> <u>just west of Route 83</u> Municipality: <u>Villa Park & Elmhurst</u> Watershed Planning Area & Trib: <u>Salt Creek</u>	9. Legal Description <table style="width:100%; border: none;"> <tr> <td style="text-align: center;"><u>3 & 10</u></td> <td style="text-align: center;"><u>39N</u></td> <td style="text-align: center;"><u>11E</u></td> </tr> <tr> <td style="text-align: center;"><small>¼ Section</small></td> <td style="text-align: center;"><small>Township</small></td> <td style="text-align: center;"><small>Range</small></td> </tr> <tr> <td>PIN _____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>PIN _____</td> <td>_____</td> <td>_____</td> </tr> </table>	<u>3 & 10</u>	<u>39N</u>	<u>11E</u>	<small>¼ Section</small>	<small>Township</small>	<small>Range</small>	PIN _____	_____	_____	PIN _____	_____	_____
<u>3 & 10</u>	<u>39N</u>	<u>11E</u>											
<small>¼ Section</small>	<small>Township</small>	<small>Range</small>											
PIN _____	_____	_____											
PIN _____	_____	_____											

10. Check all of the conditions which apply:

<input checked="" type="checkbox"/> Flood Plain	<input type="checkbox"/> Stormwater Detention	<input type="checkbox"/> Best Management Practices	<input checked="" type="checkbox"/> Soil Erosion & Sediment Control
<input type="checkbox"/> Wetland	<input type="checkbox"/> Wetland Buffer	<input checked="" type="checkbox"/> Riparian Buffer	

11. Acknowledgement of On-Site Infiltration PCBMPs
 I acknowledge that I have used my best effort to identify zones for which on-site infiltration are prohibited for Post Construction Best Management Practices (PCBMPs) in accordance with the Ordinance (15-63.B)

<u>Vydas Juskelis</u>	N/A	11-16-18
Signature of Applicant	Print Name	Date

12. Freedom of Information Act (FOIA)
 I acknowledge that all architects' drawings, engineers' technical submissions and other construction-related technical documents containing stormwater management information submitted with this application may be made available for inspection or copying by the County, notwithstanding 5 ILCS 140/7(1)(k), upon the written request for such materials. Such productions will be restricted to the following parties: i) the Applicant ii) any subsequent owner of the subject property; or iii) any governmental unit having planning or drainage jurisdiction within 1 and ½ mile of the subject property.

<u>Vydas Juskelis</u>	Vydas Juskelis	11-16-18
Signature of Applicant	Print Name	Date
<u>Vydas Juskelis</u>	Vydas Juskelis	11-16-18
Signature of Owner	Print Name	Date

13. Statement of Opinion for Minimum Criteria for Stormwater Management
 I am a Professional Engineer under the employment of the Applicant. It is my professional opinion that the development meets the minimum criteria for stormwater management in accordance with the Ordinance (15-36)

<u>Derrick Martin</u>	Derrick Martin, P.E.	11.09.2018
Signature of Professional Engineer	Print Name	Date



DUPAGE COUNTY STORMWATER MANAGEMENT CERTIFICATION APPLICATION (2/2)

Community Tracking No: <u>PRSW201801749</u>	DuPage County Tracking No:
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14. Statement of Opinion for Presence of Flood Plain, Wetlands, and Buffers (15-47-A.5)

<input checked="" type="checkbox"/> I acknowledge the presence of flood plain. <input type="checkbox"/> I deny the presence of flood plain. <u>Derrick Martin</u> 11.09.18 Signature of Qualified Professional Date Derrick Martin, P.E. Printed Name	<input type="checkbox"/> I acknowledge the presence of wetlands. <input checked="" type="checkbox"/> I deny the presence of wetlands. <u>Scott J. Brejcha</u> 11.09.18 Signature of Qualified Professional Date Scott J. Brejcha, PWS Printed Name	<input checked="" type="checkbox"/> I acknowledge the presence of buffers. <input type="checkbox"/> I deny the presence of buffers. <u>Scott J. Brejcha</u> 11.09.18 Signature of Qualified Professional Date Scott J. Brejcha, PWS Printed Name
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15. Soil Erosion & Sediment Control Submittal Requirements (15-50.B)
(For developments with less than 1 acre of land disturbance that are not part of a larger common plan)

I certify that the development meets the soil erosion and sediment control design criteria found in Article VII have been met.

<u>Derrick Martin</u>	Derrick Martin, P.E.	11.09.18
Signature of Qualified Designer	Print Name	Date

16. Soil Erosion & Sediment Control Requirements (15-59.W) (For developments with land disturbing activities greater than 1 acre)

I acknowledge that the site complies with the IEPA NPDES ILR10 Permit.

N/A		
Signature of Applicant	Print Name	Date

17. Acknowledgement of Required As-Built Plans (15-47.B)

I acknowledge that a record drawing signed by either a Professional Engineer or a Professional Land Surveyor depicting the as-constructed size, rim, and invert elevations of pipes, stormwater structures and culverts, and contours and flood storage volumes of all required basins of the major stormwater systems and minor stormwater systems shall be submitted for review and approval upon completion of the stormwater facilities.

<u>Vydas Juskelis</u>	Vydas Juskelis	11-16-18
Signature of Owner	Print Name	Date

18. Intentional Misrepresentation Under Penalty of Perjury

I declare that I have examined and/or made this application and rider, and it is true and correct to the best of my knowledge and belief. I realize that the information that I have affirmed hereon forms a basis for the issuance of the stormwater management certification(s) herein applied for and approval of plans in connection therewith shall not be construed to permit any construction upon said premises or use thereof in violation of any provision of any applicable ordinance or to excuse the owner or his successors in title from complying therewith. The Owner and Applicant each understand and agree to construct said improvement in compliance with all provisions of the applicable ordinances.

<u>Vydas Juskelis</u>	Vydas Juskelis	11-16-18
Signature of Applicant	Print Name	Date
<u>Vydas Juskelis</u>	Vydas Juskelis	11-16-18
Signature of Owner	Print Name	Date

DO NOT WRITE BELOW THIS LINE

19. Security (15-54) Stormwater Facilities \$ _____ Wetlands/Natural Area \$ _____ SE/SC \$ _____ Total \$ _____	20. Stormwater Fees Community Review \$ _____ DCSM Review \$ _____ Fee-in-Lieu \$ _____ \$ _____ Wetland BMP	Seal/Stamp <small>Certifications expire December 31st of the third year of Certification or Authorization, whichever is earlier.</small>
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21. Final Approvals (See Certification letter for special conditions and general conditions.)

Community Certification	_____	
	Date	Approved by/title
County Authorization	_____	
	Date	Approved by/title

ST. CHARLES ROAD BRIDGE OVER SALT CREEK

VILLAGE OF VILLA PARK, DuPAGE COUNTY, ILLINOIS

Introduction

St. Charles Road over Salt Creek is a five-lane roadway located just west of Route 83 in the Village of Villa Park and the City of Elmhurst within DuPage County (sections 3 and 10, T39N, R11E; Elmhurst quadrangle). See Exhibits 1 and 2 under Tab 1. The existing bridge is a 3-span concrete deck beam bridge supported by two abutments and two piers. The existing bridge is 68' long and spans 113'. There is an existing concrete pedestrian path that runs under the eastern span.

The bridge deck and approach roadway are being replaced and widened by approximately 1 foot. The existing bridge piers and abutments will remain in place. Scour protection will be installed around the existing piers. The existing roadway storm sewer system will remain in place with rims to be adjusted as needed.

Existing Conditions

As mentioned previously, St. Charles Road over Salt Creek is a five-lane roadway. The existing bridge is a 3-span concrete deck beam bridge supported by two abutments and two piers. The bridge was widened in 1979. The existing bridge is 68' long and spans 113'. There is an existing concrete pedestrian path that runs under the eastern span.

Existing Drainage System

St. Charles Road is a five-lane roadway with B9.12 curb and gutter. Three of the five lanes are less than 11' wide. A 5' wide sidewalk runs along both sides of the roadway. Within the project limits there are 3 storm sewer systems all of which outlet to Salt Creek. A 24" RCP system runs from west to east under the north side of St Charles Road west of the bridge. There is a large 78" RCP system that runs under the southern portion of St. Charles Road west of the bridge. Per a review of 1979 St. Charles Road IDOT engineering plans (see Tab 8) this 78" sewer extends west to Summit Avenue and outlets to Salt Creek by passing through the west abutment. The third storm sewer system is an 18" RCP running under the south side of St. Charles Road east of the bridge. The existing storm sewers within the project limits are shown on Exhibit 7B under Tab 2.

Exhibit 7A (Tab 2), the Overall Existing Drainage Plan (EDP), shows the drainage patterns within and adjacent to the project limits. The floodway and floodplain limits are also shown on this exhibit. DuPage County 2-foot contour information was used to delineate drainage patterns outside the project survey limits. Per this 2-foot contour information there is some off-site area that appears to drain to the roadway drainage system. The project site contains one drainage outlet which is to Salt Creek at the south side of the bridge. Salt Creek flows from north to south. A local drainage area of 6.55 acres has been delineated to this outlet. The total drainage area to this outlet however is much larger as it contains the entire area tributary to the 78" storm sewer as well as the other two storm sewer systems which extend outside the project limits. The existing curve number (CN) for the 6.55-acre local drainage area was calculated to be 93.2 (see Tab 2).

Three soil series were mapped within the subject property by the Natural Resources Conservation Service (Exhibit 4, Tab 2). These soils include Orthents, clayey, undulating (805B), Markham-Ashkum-Beecher complex (854B), and Sawmill silty clay loam (3107A). The 805B soil is classified as hydrologic soil group D, while soils 3107A and 854B are classified as hydrologic soil group C.

The USGS Hydrologic Atlas (Exhibit 5, Tab 2) shows the presence of Salt Creek throughout the project area. The 12-Digit Hydrologic Unit Code (HUC) Map (Exhibit 9, tab 3) shows that the subject property lies within the Lower Salt Creek sub watershed, which is associated with the larger Des Plaines River watershed.

Floodplain

The FEMA Flood Insurance Rate Map (FIRM) (Exhibit 12, Tab 3) shows flood zones AE and X throughout the project area associated with Salt Creek. The DuPage County Regulatory Flood Map (RFM), Exhibit 13 (Tab 3), shows floodway areas and special flood hazard areas in the center and eastern portion of the project area associated with Salt Creek.

Historical Observations/Records

The Floodplain Mapping Report for Lower Salt Creek (prepared for DuPage County by CBBEL) dated November 2011 contains a surveyed highwater mark elevation just downstream of the St. Charles Road Bridge for the September 2008 flood event of 666.26 NAVD 88 (666.54 NGVD 29). The highwater mark was surveyed at Rotary Park at the end of Wildwood Street (see Exhibit 1). This is somewhat consistent with the USGS Hydrologic Atlas (Exhibit 5) which shows a flood elevation of approximately 665 NGVD 29 at the crossing.

Additionally, USGS gage data is available for the April 2013 flood event. Extrapolating from the downstream Elmhurst gage the highwater level at the St. Charles Road bridge is estimated at about 666.74 (NAVD 88). The gage data used can be found under Tab 2. With an existing roadway overtopping elevation of 668.55 (outside the floodplain limits), the road was not overtopped during the April 2013 or the September 2008 flood events.

This structure does not appear to be a source of demonstrable flooding based on the information available at the time of this report. Both the Village of Villa Park and the City of Elmhurst have provided letters stating that the existing structure is not a source of flood damage, see items 2 and 3 under Tab 3, Correspondence).

Datum Correlation

Survey information for St. Charles Road, the existing bridge, bounding cross sections, and the streambed profile were obtained for this analysis. The survey was completed on the North American Vertical Datum of 1988 (NAVD 88).

The Elmhurst gage data, the Regulatory Floodplain Mapping Report and Documentation For Lower Salt Creek Watershed (FEQ modeling), and likely the 1979 engineering plans for the existing St. Charles Road Bridge over Salt Creek use the National Geodetic Vertical Datum of 1929 (NGVD 29). To compute the conversion factor from NGVD 29 to NAVD 88, the National Geodetic Survey VERTCON program was utilized. According to VERTCON, the conversion factor at St. Charles Road over Salt Creek is approximately -

0.28 when converting from NGVD 29 to NAVD88. The existing FEMA Flood Insurance Study was also completed on the NGVD 29 datum.

Wetlands

No wetlands are identified in the project area on the National Wetlands Inventory (NWI) Map or the DuPage County wetland map; however, Salt Creek is mapped as a blue line stream on the NWI and a Waters of DuPage on the DuPage County wetland map (see Tab 4). A Wetland Delineation and Assessment Report, dated October 8, 2015 and updated November, 2018, prepared by V3 Companies, Ltd. was prepared for the project. One Waters of the U.S./Waters of DuPage (Area 1, see Exhibit 5 under Tab 4) was delineated within the project area. Area 1 (~0.51 acres on-site, continues off-site to the north and south) is located in the center of the project area and consists of Salt Creek, a Waters of the U.S./Waters of DuPage. In V3's professional opinion, Area 1 is a non-HQAR Waters of the U.S./Waters of DuPage subject to US Army Corps of Engineers (USACE) jurisdiction. No wetland areas were identified within 100-feet of the subject property per the DuPage County Ordinance. The delineated wetland boundary for Area 1 was field verified by Ms. Jenna Fahey of the DuPage County Stormwater Management Commission (SMC) on November 2, 2015 and reverified on November 14, 2018. As part of the wetland delineation assessment, Illinois Department of Natural Resources (IDNR) and US Fish and Wildlife Service (USFWS) threatened and endangered species evaluations were conducted. The IDNR confirmed that the Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location. The Army Corps of Engineers has issued a Letter of No Objection for this project (see Tab 4).

Proposed Conditions

The proposed project consists of replacing the St. Charles Road bridge superstructure and the adjacent roadway approach pavement. The existing piers and abutments will remain in place. The proposed bridge low chord elevation is equal to the existing bridge low chord elevation. One additional inlet will be added to the roadway storm sewer system. All other drainage structures within the project work zone will be adjusted as needed. See the Proposed Drainage Plan, Exhibit 8, Tab 2.

The proposed bridge deck and roadway improvements are above the Salt Creek 100-year water surface elevation therefore no floodplain or floodway fill will occur as a result of this work. Sheet piling will be installed around the perimeter of the existing bridge piers to provide scour protection. The top of the sheet piling will be installed at the existing stream bed elevation therefore the sheet piling installation will not result in any floodway or floodplain fill.

Permits Required

Due to the fact that this development site is within a floodplain and involves more than 5,000 square feet (0.11 acres) of land disturbing activity, a DuPage County Stormwater Management Certification is required. The total disturbed area for this project is 0.61 acres (see Exhibit 6). Due to the fact that it is less than 1.0 acre a General NPDES permit (NOI & SWPPP) is not required.

St. Charles Road is not an Illinois Department of Transportation (IDOT) roadway however federal bridge funding is being used which in turn requires an IDOT review and approval. Both a Hydraulic Report and Location Drainage Study (LDS) were prepared during the Phase 1 process. These reports were reviewed and approved by IDOT. Due to the fact that work is proposed within the regulatory floodway limits, a floodway permit is required. IDOT, on behalf of IDNR-OWR, has issued a Floodway Construction Permit for this project dated December 1, 2016. This permit is included under Tab 3.

The Army Corps of Engineers has issued a Letter of No Objection dated February 6, 2017 which states that a Department of Army permit is not required for the proposed placement of sheet piles around the bridge piers. This determination is valid for 5 years and is included in Tab 4.

A Consultation for Endangered Species (EcoCAT) was submitted to IDNR and the Illinois Natural Heritage Database reported no record of endangered species and consultation was terminated. This IDNR consultation dated 10/08/18 is valid for 2 years and is included in Tab 4. No other stormwater related permits are required for this project.

Proposed Drainage System

Due to the fact that the proposed roadway improvements are very minor the existing storm sewer systems will remain in place. The proposed improvements add only 565 square feet of new impervious area and therefore no significant amount of new runoff is being added to the existing storm sewer system (see Exhibits 6 & 8).

There are currently no scuppers or drainage structures within the existing bridge deck. Inlet spacing calculations were performed to determine if the bridge deck and associated roadway improvements required any new drainage structures. Per Section 1-304.02 of the IDOT Drainage Manual the spread of gutter flow for the 10-year storm event shall not exceed 3 feet for roadways with design speeds less than 50 mph. The design speed for St. Charles Road is 35 mph. The existing / proposed curb and gutter type is B9.12 therefore the total allowable flow spread is 4 feet (1' gutter flow + 3' pavement spread). The roadway profile high point is located approximately at the bridge centerline therefore half of the bridge deck drains to the west and half to the east. Inlet spacing calculations indicate that the maximum spread of 4 feet is not exceeded on the bridge deck and therefore no drainage structures are required along the bridge deck.

For the roadway improvements adjacent to the deck replacement the allowable pavement spread is the gutter width plus one half a traffic lane (lane width for this project is 11 feet). In this case the total allowable spread outside the bridge deck is 6.5 feet (1' gutter flow + 5.5'). See IDOT Drainage Manual Section 1-304.01. Inlet spacing calculations indicate that there are sufficient inlets east of the bridge however one additional inlet is needed west of the bridge along the north curb line to meet the current design standards. This additional inlet is shown on the Proposed Drainage Plan (PDP) Exhibit 8 and the engineering plans.

Within the project limits the maximum IDOT inlet spacing of 250 feet is not exceeded. The existing drainage structures within the proposed pavement improvement limits will be adjusted as needed as shown on Drainage and Utility Plan.

Stormwater Detention

The new impervious area for this project is 565 square feet (0.015 acres) which is less than 25,000 square feet therefore, stormwater detention is not required per Section 15-72.A of the Countywide Stormwater & Floodplain Ordinance. See Exhibit 6. Both Villa Park and Elmhurst have adapted the Countywide Stormwater Ordinance and have no further stormwater detention requirements. Furthermore section 1-304.03 of the IDOT Drainage Manual specifies that no stormwater detention storage is required in urban areas so long as there are: 1) no diversions of flow, 2) no significant increases in the amount of runoff as a result of increased impermeability, 3) no reduced time of concentration or filling of natural storage areas.

The 565 square foot proposed increase in impervious area is not significant enough to increase the curve number for the 6.55-acre local project drainage area and therefore no significant increase in runoff will occur. See Tab 2 for existing and proposed CN calculations. In summary, no stormwater detention is required for this project and runoff rates will not be increased.

Bridge Floodplain Analysis

DuPage County Requirements

The proposed St. Charles Road bridge deck replacement occurs entirely above both the regulatory and DuPage County preliminary 100-year water surface elevations. The existing bridge piers and abutments will remain in place and the existing waterway opening is equal to the proposed waterway opening. As explained previously the proposed sheet piling, being installed for scour protection, does not result in any floodplain or floodway fill. Therefore, per Section 15-81.A.2.d of the DuPage County Stormwater and Flood Plain Ordinance, the development is exempt from the hydrologic and hydraulic modeling requirements as the existing and proposed structures are hydraulically equivalent. Furthermore, IDOT on behalf of IDNR-OWR has previously issued the required floodway construction permit (see Tab 3). The following is a summary of the various water surface elevations compared to the bridge low chord and overflow elevations:

Study / Source	Water Surface Elevations	
	100-Year	500-Year
FEMA Regulatory	668.0	670.3
DuPage Regulatory	668.0	670.3
DuPage Preliminary	667.3	667.6
IDOT Study, Waterway Information Table Elevations, Existing = Proposed	666.74	667.35

Bridge Low Chord Elevation (Existing = Proposed) = 669.27

Existing Bridge Overflow Elevation = 671.45

Proposed Bridge Overflow Elevation = 671.32

Per the above table the “worst case” 100-year water surface elevation (current regulatory) of 668.0 is 1.27 feet below the bridge low chord elevation. Furthermore, both the preliminary 100-year and 500-year WSELs are below the low chord elevation by 1.97 and 1.67 feet respectively.

IDOT Bridge Design Criteria

In the proposed condition the St. Charles Road bridge deck and approach pavement will be replaced however the bridge piers and abutments will remain in place. The roadway profile is being raised between 2 and 4.3 inches however the bridge low chord elevation will remain unchanged. While this is not an IDOT roadway/bridge the IDOT criteria was used to evaluate the capacity of the bridge. Both the Village of Villa Park and DuPage County ordinances were reviewed however these documents did not specify any specific freeboard or capacity criteria for bridges. IDOT has two capacity criteria that would apply to this bridge:

1. For all bridge projects, there must be a minimum clearance of 2’ between the design high water (50-year) elevation and the low beam elevation. This criterion applies to superstructure replacements. The 50-year natural highwater elevation at the bridge is 666.30 which is 2.97’ below the low beam elevation of 669.27.
2. A minimum roadway freeboard of 3’ must be established between the design headwater (50-year) elevation and the lowest pavement elevation within the floodplain. The lowest pavement elevation within the floodplain is 671.32 which is 4.89’ above the proposed 50-year headwater elevation of 666.43.

In summary, the existing / proposed bridge opening has sufficient hydraulic capacity and no waterway opening enlargement is required. See the IDOT Waterway Information Table (WIT) under Tab 3.

Hydrologic & Hydraulic Analysis

The hydrologic and hydraulic modeling used in the IDOT hydraulic report and to develop the IDOT Waterway Information Table (WIT) was based on the FEQ modeling from the Floodplain Mapping Report and Documentation for Lower Salt Creek Watershed prepared by CBBEL for DuPage County and dated November 2011. While this FEQ modeling is not currently the regulatory model, it represents the most up to date modeling and survey information and is currently going through the review process to become the regulatory model. It has been reviewed and approved by IDNR-OWR.

While the hydraulic modeling is not included in the submittal, the resulting WSELs are shown within the WIT and various exhibits.

Salt creek flows from north to south under St. Charles Road through the bridge. There is a bridge located about 285 feet downstream of St. Charles Road that carries a pedestrian path over Salt Creek. This is a 2-span bridge. There is an additional bridge located about 680 feet downstream of St. Charles Road that conveys Route 83 over Salt Creek. This is a 3-span bridge. There are no existing bridges or culverts 1000 feet upstream of the St. Charles Road Bridge.

Floodplain Fill Analysis

While there is both regulatory floodway and floodplain designated within the project work limits, there is no proposed fill within the floodway or floodplain. Due to the fact that only the bridge deck and approach pavement are being replaced and the fact that the proposed 100-year WSEL is well below the bridge low chord elevation, there is no floodplain or floodway fill associated with this project. The piers and abutments will remain in place and the bridge waterway opening will not be altered in the proposed condition. With the exception of the proposed scour countermeasures, all of the proposed improvements will occur above the 100-year WSEL. The scour countermeasures will be installed below the existing streambed elevation and will not result in any fill within the floodway.

Scour Analysis

A detailed scour analysis was performed for the St. Charles Road Bridge using the HEC-RAS hydraulic model. The following are the scour depths calculated via the HEC-RAS model for the 100-year and 200-year flood events:

Design Scour Depths (ft)				
	West Abutment	West Pier	East Pier	East Abutment
Q100	9.32	4.74	4.76	6.23
Q200	9.54	4.79	4.81	6.46

The above scour depths translate to the following elevations (NAVD 88):

Design Scour Elevations (ft)				
	West Abutment	West Pier	East Pier	East Abutment
Q100	652.65	649.02	648.66	657.66
Q200	652.43	648.97	648.61	657.43

Scour cross-sections for both the 100-year and 200-year storms, which depict the scour depths in relation to the surveyed bridge cross-section, are included in Tab 3. According to the soils report and the IDOT Bridge Manual the existing soils do not qualify for any reduction to these calculated depths. Soil boring B-2 was used for the scour analysis as its located just downstream of the bridge (see geotechnical report in Tab 3). Using the upper 1.5 foot of bed material within boring B-2, a D_{50} particle size of 1.1 was used and a D_{95} particle size of 17 was used.

It is generally understood that the equations used to calculate scour depths may be overly conservative and engineering judgement should be used to determine the actual scour potential. To that end we know that a 100-year to 500-year flooding event occurred in April of 2013 for Salt Creek. Gage data is available for this flooding event just downstream of our study area. A professional underwater investigation of the bridge occurred in December of 2014 just 1 year and 8 months after this flooding event. This investigation found some evidence of scour at the bridge. The underwater investigation revealed that a portion of the footing of the west pier was partially exposed by as much as 0.5 to 0.8 feet. The approximate top of footing elevation is 652.72 (NAVD 88)

therefore this corresponds to a scour elevation of about 651.92 (versus the calculated elevation of between 648.97 and 649.02). The investigation revealed 2.6' of exposure along a portion of the east pier which results in a scour elevation of 650.12 (versus the calculated elevation of between 648.61 and 648.66).

In order to protect the existing bridge piers from future scour the following scour countermeasures are proposed. Permanent sheet piling will be installed around the perimeter of the western pier and around the west side of the eastern pier. This sheet piling will be installed to a depth of approximately 15 feet. The elevated concrete path between the east pier and east abutment prevents the placement of scour countermeasures along the east face of the east pier and makes it unnecessary due to the amount of fill already placed along this face of the pier.

It should be noted that riprap installation around the piers was also considered as a scour countermeasure however portions of these piers are constructed on spread footings and excavating adjacent to these footings to install the required 4.8 feet depth (scour depth) of riprap could cause structural instability and was therefore eliminated as an option. Additionally, there is typically 5 feet of water within Salt Creek under the bridge that would make excavation difficult.

Erosion Control Plan & Best Management Practices

The new impervious area for this project is 565 square feet (0.015 acres) which is less than 2,500 square feet therefore, post construction best management practices (PCBMP's) are not required per Section 15-63.A of the Countywide Stormwater & Floodplain Ordinance.

This project essentially replaces the existing bridge deck and adjacent roadway with only minor changes to the original pavement footprint and storm sewer system. Some adjacent grass areas will be disturbed during construction. These areas will be restored with new topsoil, grass seeding and erosion control blanket. Inlet filter baskets will be installed at all open lid drainage structures within and adjacent to the proposed work area. A sediment control silt curtain is proposed within the creek to prevent sediment and construction debris from traveling downstream. Silt fence will also be utilized. See the Erosion Control & Landscaping Plan under Tab 7 and within the engineering plans submitted with this report.

Sheet piling will be installed around the perimeter of the bridge piers. This sheet piling will be installed from St. Charles Road to minimize any impacts to Salt Creek. No sheet piling machinery will be utilized within the creek and there will be no stream bed excavation.

The Erosion Control Plan was developed to prevent, or minimize to the extent possible, any sediment or construction debris from entering Salt Creek.

Submittal Items Included in the Permit Application

Per Article V, 15-47 Stormwater Submittals, of the DuPage County Stormwater and Flood Plain Ordinance, the following items are included in this application package:

15-47 Stormwater Submittals

15-47.A.1 - 3: Name and legal address of applicant and land owner, common address and legal description of site, and affidavits signed by the land owner attesting to their understanding of the requirements of the Ordinance and intent to comply therewith, including submittal of a record drawing, are included on the signed permit application form within Tab 1.

15-47.A.4: IDOT, on behalf of IDNR-OWR, has issued a Floodway Construction Permit for this project dated December 1, 2016. A copy of this permit is included under Tab 3. The Army Corps of Engineers have issued a Letter of No Objection dated February 6, 2017. A copy of this letter is included under Tab 4. An NPDES permit (NOI) is not required as the proposed disturbed area is less than 1 acre.

15-47.A.5: Certification statements, signed by a professional engineer and wetland specialist, are included in Tab 2.

15-47.A.6: The enclosed drainage exhibits and engineering plans depict all proposed stormwater elements associated with the project including minor storm sewer adjustments and scour protection for the existing bridge piers. No stormwater detention is required for this project.

15-47.A.7: An impervious area exhibit is included in Tab 2.

15-47.A.8: The FOIA statement is included on the signed application form.

15-47.B: A record drawing will be provided upon completion of the project.

15-47.C: Informational note acknowledging the presence of floodplain to be recorded against the title to alert future owners. Likely not required for a roadway project within public right-of-way.

15-47.D.1 – D.2: The major and minor stormwater conveyance systems are shown in the attached exhibits and engineering plans.

15-47.D.3 – D.5: The impervious area exhibit and the existing and proposed curve number calculations are included in Tab 2.

15-47.D.6-8: No stormwater detention storage is required for this project.

15-48: Wetland and Buffer Impact Submittals: See Tab 4 for all required submittal elements.

15-49: Post Construction Best Management Practice Submittal: The new impervious area for this project is 565 square feet which is less than 2,500 square feet therefore, post construction best management practices (PCBMP's) are not required for this project.

15-50: Soil Erosion and Sediment Control Submittal Requirements

15-50.A: N/A

15-50.B: A proposed Erosion Control Plan is included under Tab 7 and in the engineering plans included with this submittal.

15.50.C: N/A

15.50.D: N/A

15-51: Flood Plain Submittal Requirements:

15-51.A.1: A copy of the regulatory and preliminary FIRM and FRM maps are included in Tab 3.

15-51.A.2: Summary Tables and Exhibits provided that demonstrate that the existing and proposed structures are hydraulically equivalent.

15-51.A.3: Exhibits that depict the floodway and floodplain limits in relation to the proposed improvements are shown in Tabs 2 and 3.

15-51.A.4: An IDOT Floodway Construction Permit has been obtained and is included under Tab 3. As the existing floodway/floodplain limits will not be revised a CLOMR or LOMR is not required. No additional permits are required.

Conclusion

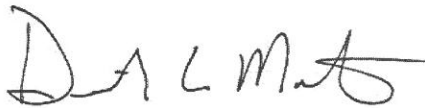
The enclosed report and exhibits demonstrate that the proposed plans for the St. Charles Road Bridge over Salt Creek are in compliance with the DuPage County Stormwater and Flood Plain Ordinance. Discharge rates downstream of the project will not be increased.

The existing 3 span bridge, which conveys Salt Creek under St. Charles Road, currently meets all of the IDOT capacity requirements set forth in section 1-305 of the IDOT Drainage Manual. Therefore, the existing waterway opening area and bridge low chord will be maintained in the proposed condition. The bridge deck will be replaced in the proposed condition but the existing piers and abutments will remain in place. As a result of the deck replacement water surface elevations upstream of the bridge are not impacted and all of the required clearance and freeboard requirements are exceeded. Furthermore, there is no proposed fill in the floodway and scour countermeasures will be installed. Therefore, V3 recommends that the enclosed plans be approved for construction.

Pursuant to Sections 15-63 through 15-65, 15-71 through 15-77, and 15-80 through 15-82 of the DuPage County Countywide Stormwater and Flood Plain Ordinance Stormwater Submittal Checklist, we hereby certify that this submittal for development in DuPage County has been prepared by V3 Companies for use by the Village of Villa Park, their affiliates, lenders and assignees.

The project limits are within a regulatory floodplain and floodway.

All plans, statements and depictions included herein are accurate to the best of our knowledge. The enclosed report and calculations demonstrate that the proposed plans for the St. Charles Road Bridge over Salt Creek Bridge Improvements are in compliance with the Ordinance.



Approved by: _____

Derrick Martin, P.E., CFM, CPESC
Water Resources Group Manager
Illinois Licensed Professional Engineer 062-056276
License Expires on November 30, 2019



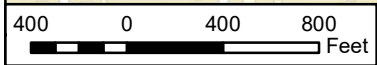
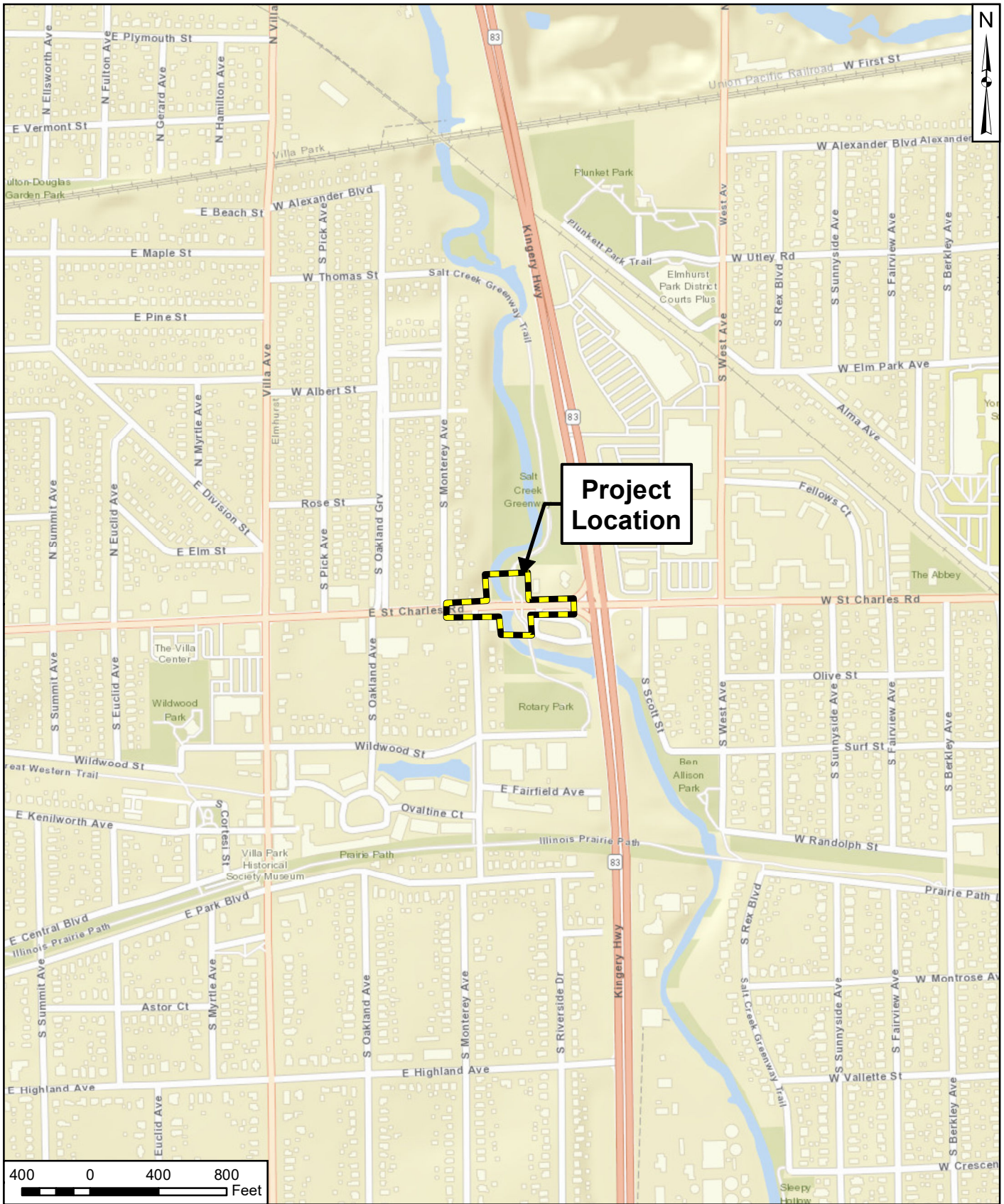
Pursuant to Sections 15-85 through 15-89, and 15-92 through 15-94 of the DuPage County Countywide Stormwater and Flood Plain Ordinance Stormwater Submittal Checklist, we hereby certify that this submittal for development in DuPage County has been prepared by V3 Companies for use by the Village of Villa Park, their affiliates, lenders and assignees.


All plans, statements and depictions included herein are accurate to the best of our knowledge. The enclosed report and calculations demonstrate that the proposed plans for the St. Charles Road Bridge over Salt Creek Bridge Improvements are in compliance with the Ordinance.

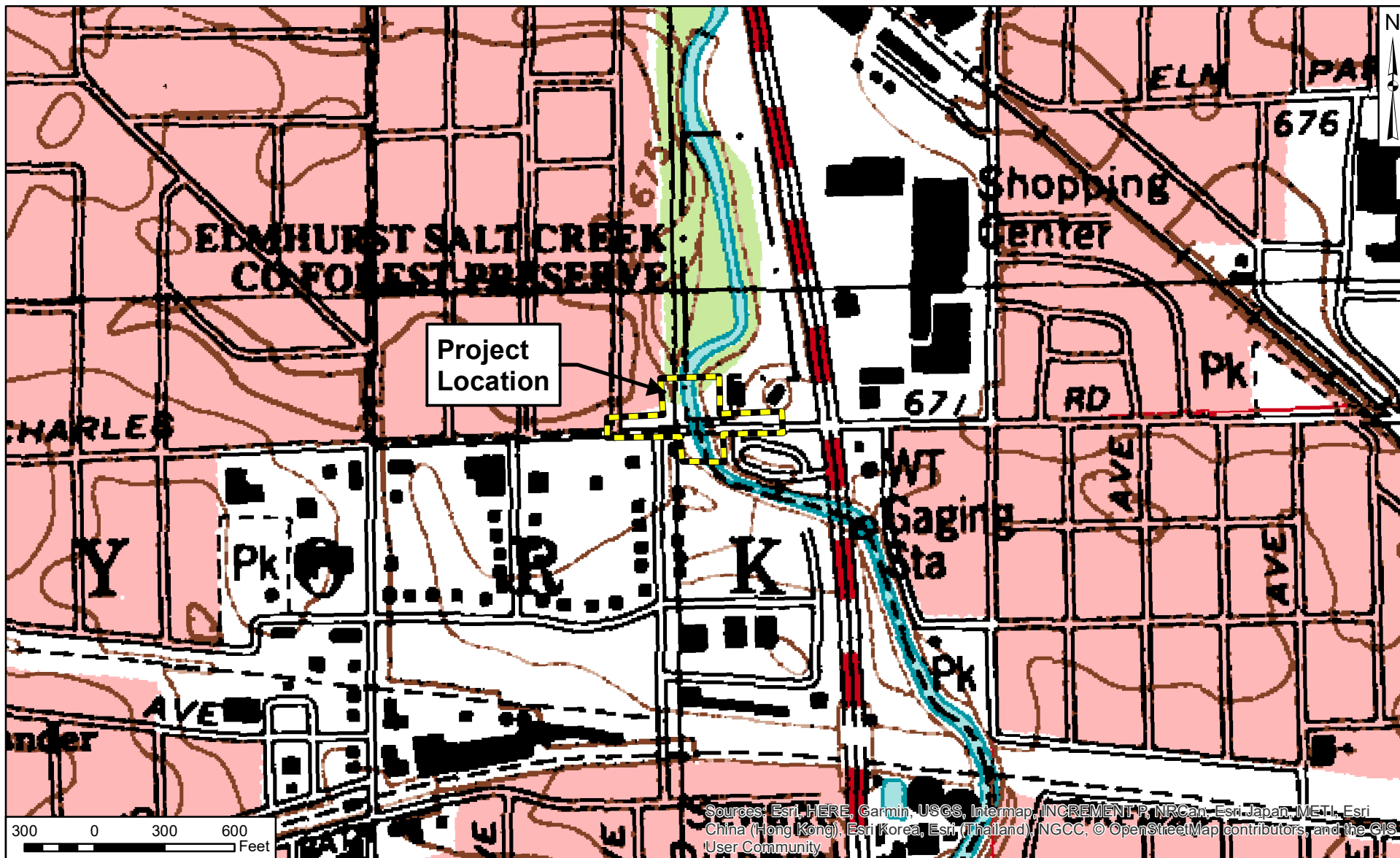


Approved by: _____


Scott Brejcha, PWS
Wetland Consulting Group Leader



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: PROJECT LOCATION MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 08/31/16</p>	<p>BASE LAYER: ESRI World Street Map</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			

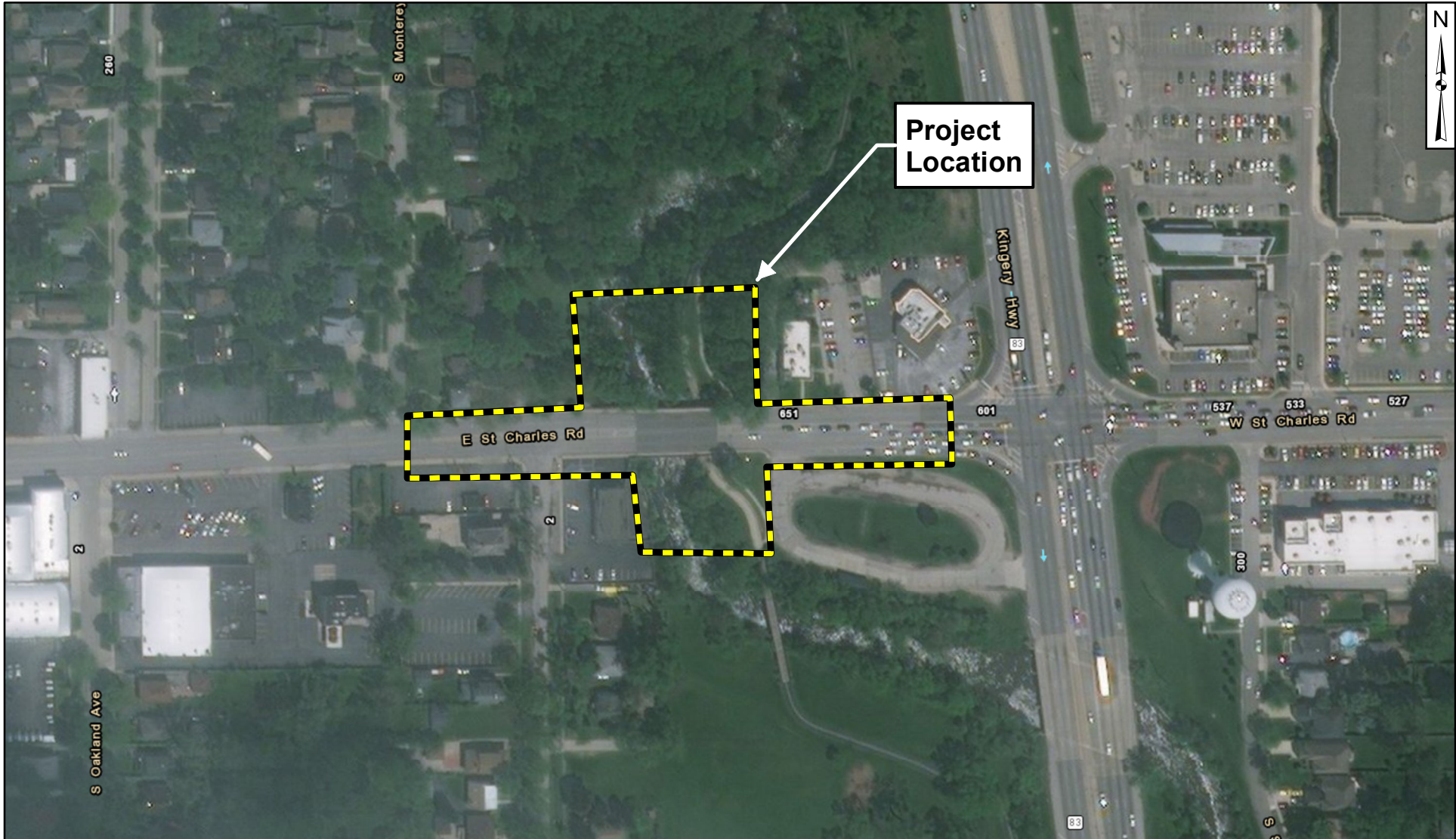


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community


 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p> <p>Visio, Vertere, Virtute... "The Vision To Transform With Excellence"</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: USGS TOPOGRAPHIC MAP</p>	
	<p>CREATED BY: BAO</p>	<p>DATE: 08/31/16</p>	<p>BASE LAYER: USGS Topographic Map Elmhurst Quadrangle (1997)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>

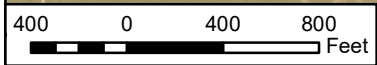
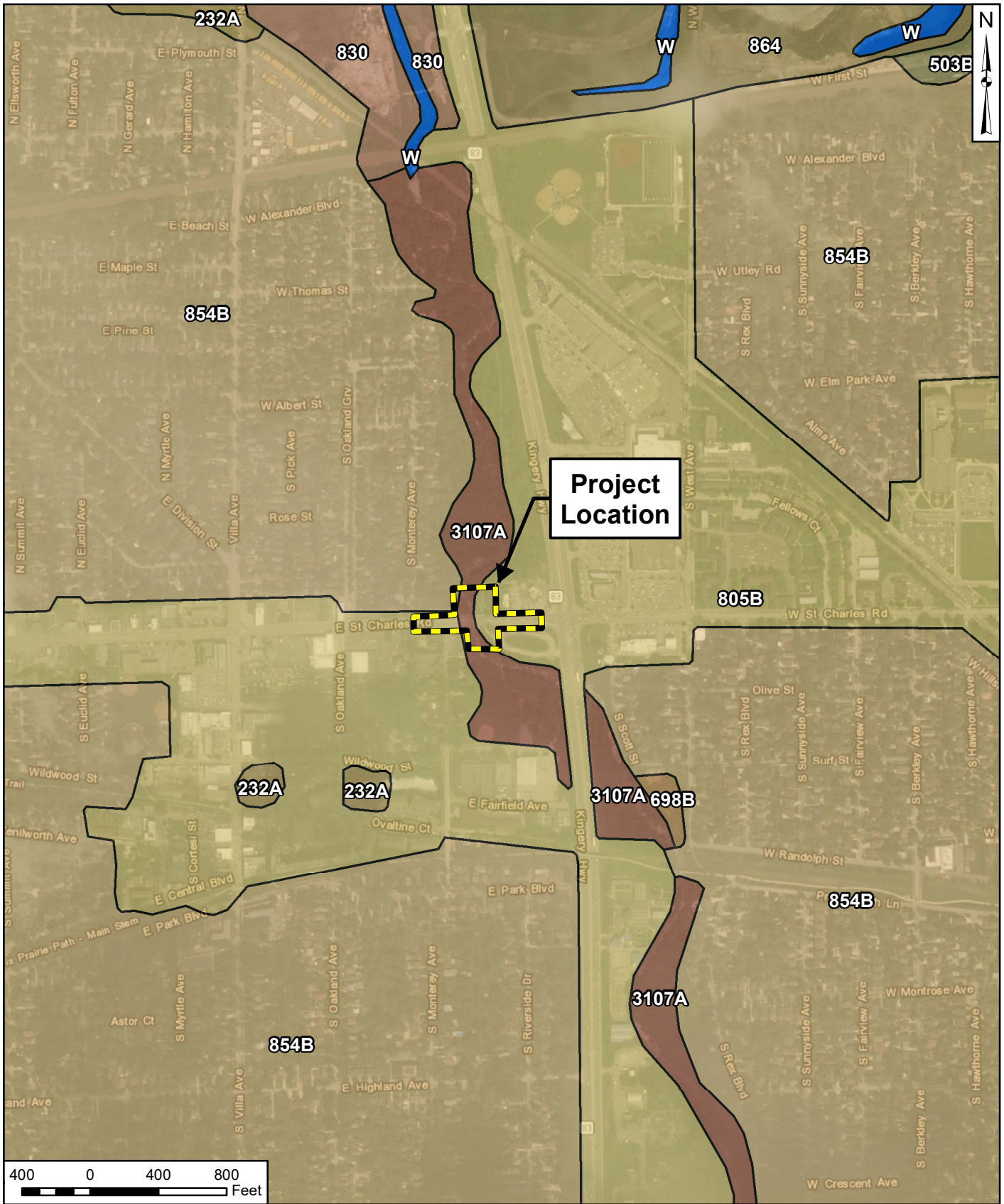
Tab 2
Stormwater Submittal


- Exhibits
- Curve Number Calculations
- Soil Classification
- Roadway Inlet Spacing Calculations

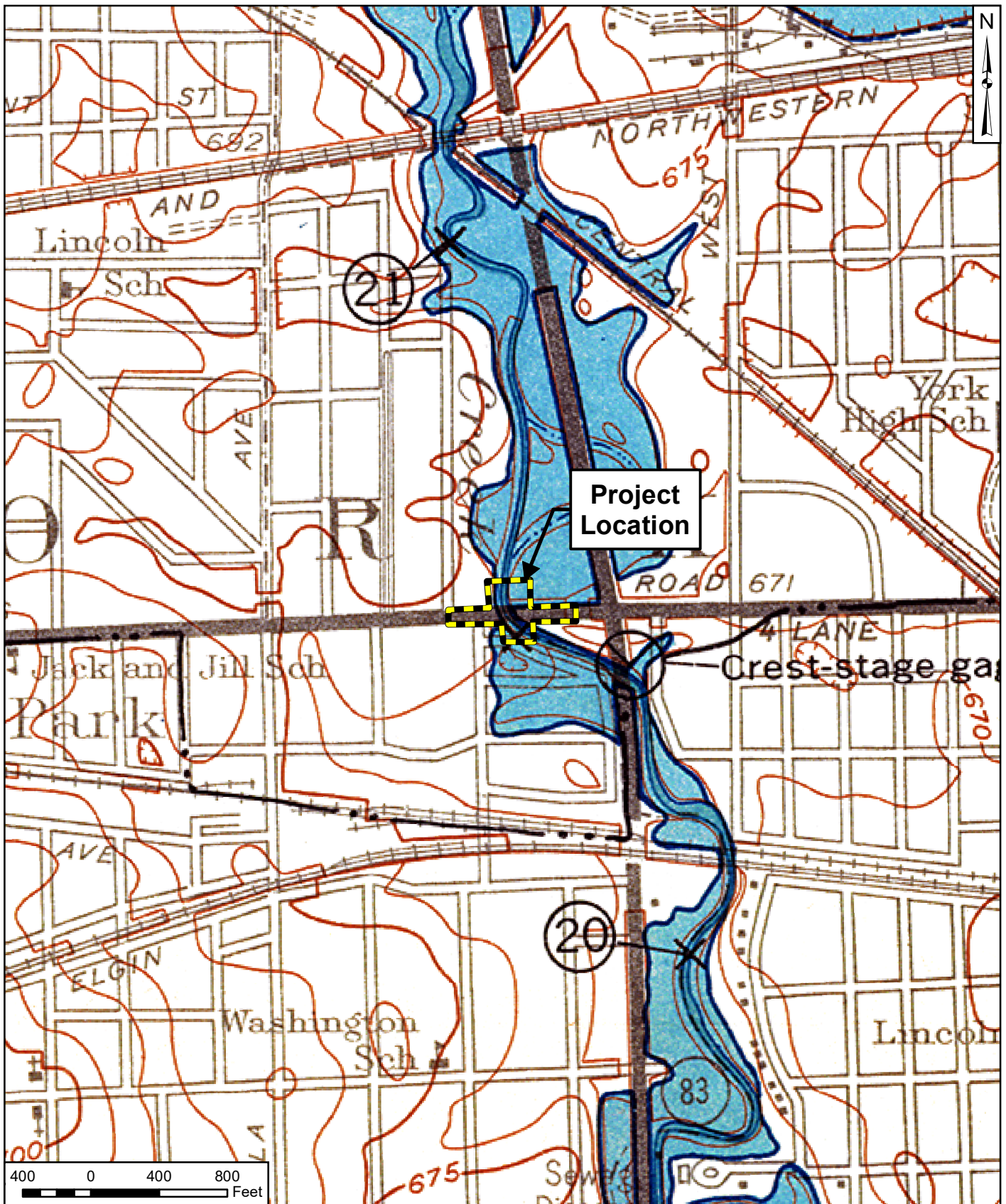



Esri, HERE, Garmin, © OpenStreetMap contributors, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>AERIAL MAP</p>	
	<p>CREATED BY: BAO</p>	<p>DATE: 08/31/16</p>		
<p>Visio, Vertere, Virtute... "The Vision To Transform With Excellence"</p>	<p>SCALE: See Scale Bar</p>			<p>FIGURE: 3</p>



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: SOIL SURVEY OF DUPAGE COUNTY, ILLINOIS (2014) MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 09/22/16</p>	<p>BASE LAYER: NAIP Aerial Imagery (2014)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: USGS HYDROLOGIC ATLAS</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 08/31/16</p>	<p>BASE LAYER: USGS Hydrologic Atlas Elmhurst Quadrangle (1965)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			

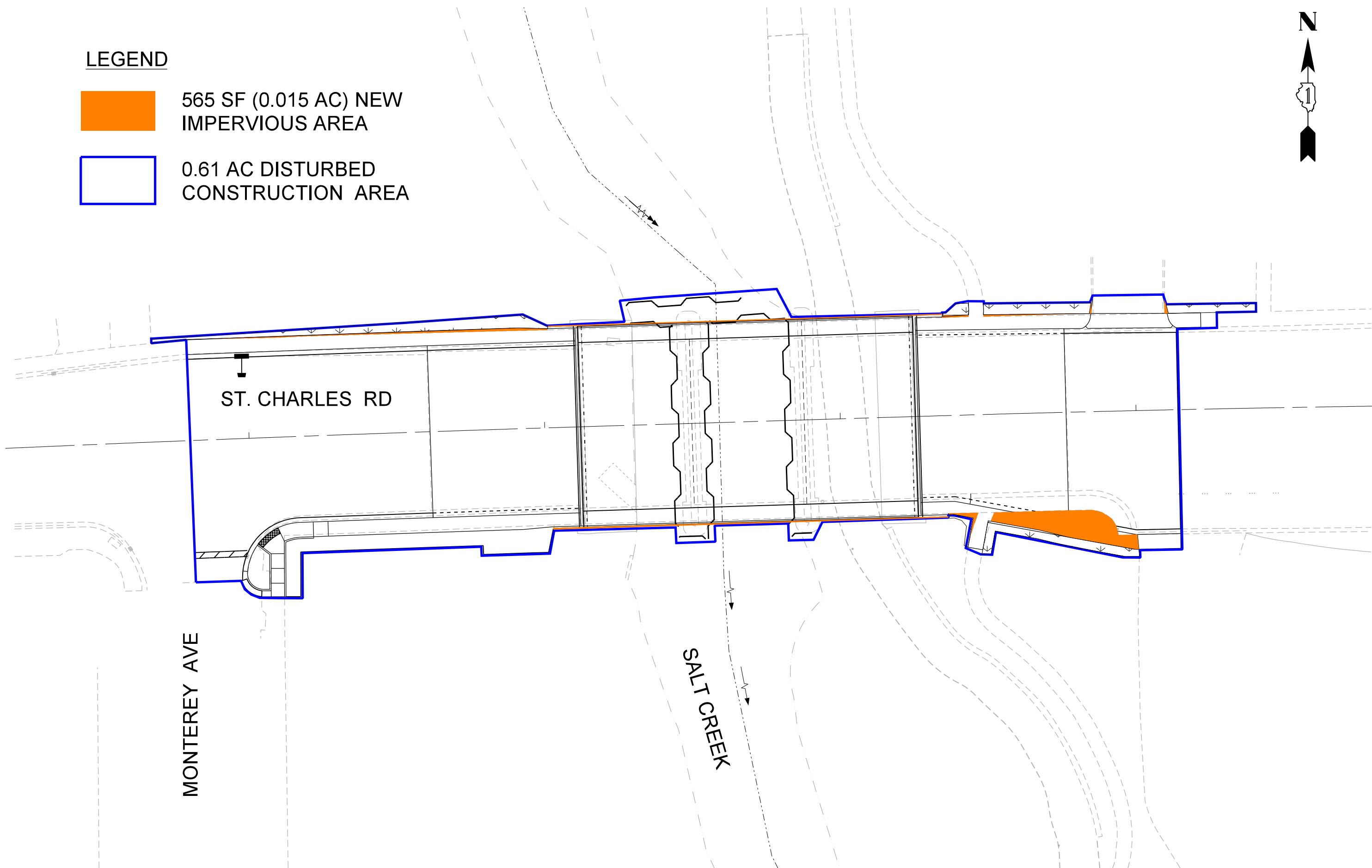
LEGEND



565 SF (0.015 AC) NEW IMPERVIOUS AREA



0.61 AC DISTURBED CONSTRUCTION AREA



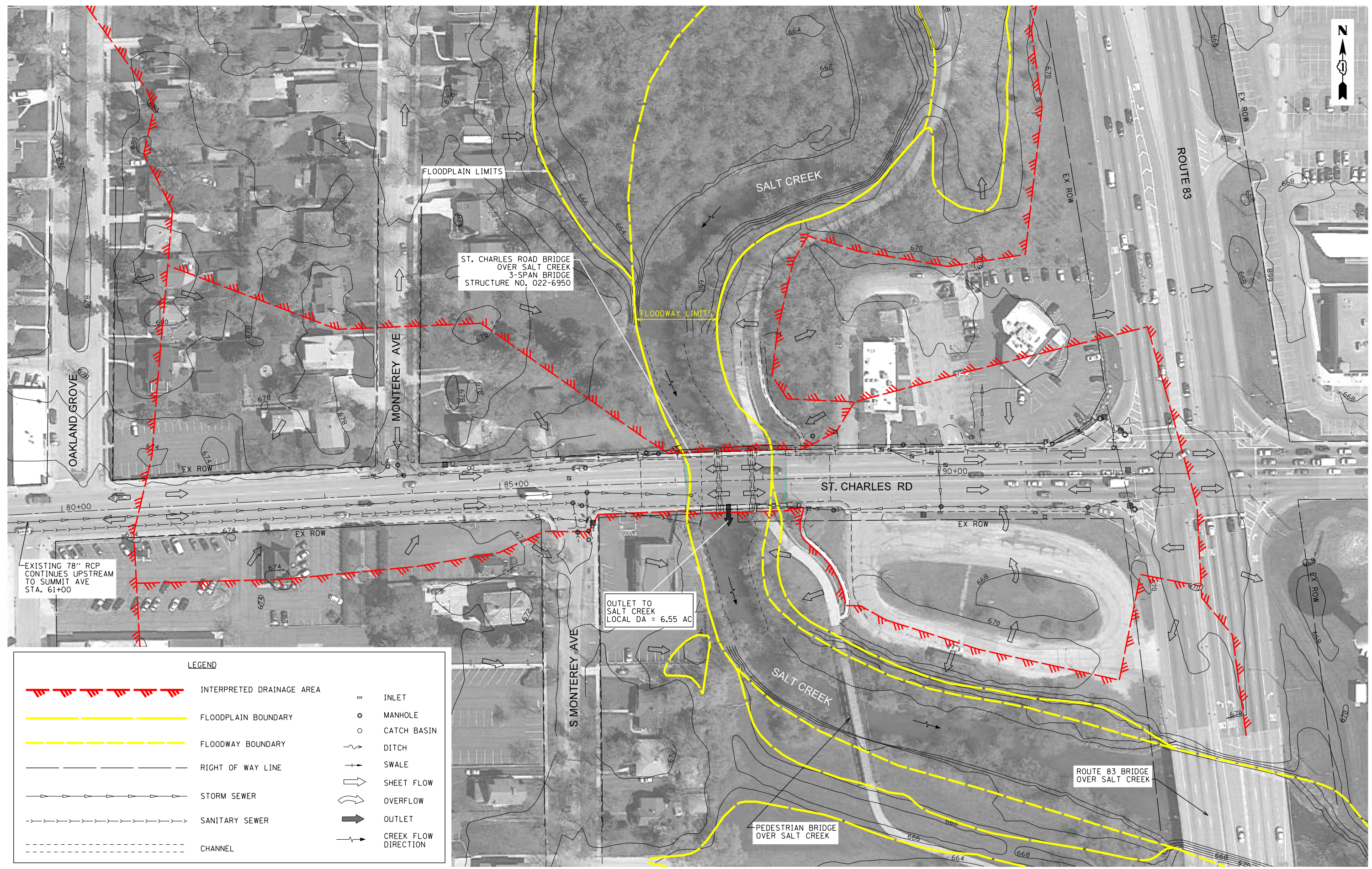
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**ST. CHARLES ROAD BRIDGE
OVER SALT CREEK**

**EXHIBIT 6
NEW IMPERVIOUS AREA EXHIBIT**

SCALE: 1" = 30' SHEET 1 OF 1 SHEETS STA. 85+80 TO STA. 89+80

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1397		DUPAGE	1	1
CONTRACT NO.				
ILLINOIS LOCAL ROADS PROJECT				



FLOODPLAIN LIMITS

ST. CHARLES ROAD BRIDGE
OVER SALT CREEK
3-SPAN BRIDGE
STRUCTURE NO. 022-6950

FLOODWAY LIMITS

EXISTING 78" RCP
CONTINUES UPSTREAM
TO SUMMIT AVE
STA. 61+00

OUTLET TO
SALT CREEK
LOCAL DA = 6.55 AC

ROUTE 83 BRIDGE
OVER SALT CREEK

PEDESTRIAN BRIDGE
OVER SALT CREEK

LEGEND	
	INTERPRETED DRAINAGE AREA
	FLOODPLAIN BOUNDARY
	FLOODWAY BOUNDARY
	RIGHT OF WAY LINE
	STORM SEWER
	SANITARY SEWER
	CHANNEL
	INLET
	MANHOLE
	CATCH BASIN
	DITCH
	SWALE
	SHEET FLOW
	OVERFLOW
	OUTLET
	CREEK FLOW DIRECTION

V3 Companies
7325 Janes Avenue
Woodridge, IL 60517
630.724.9200 phone
630.724.9202 fax
www.v3co.com

USER NAME = vsykes
PLOT SCALE = 100.0000' / 1" =
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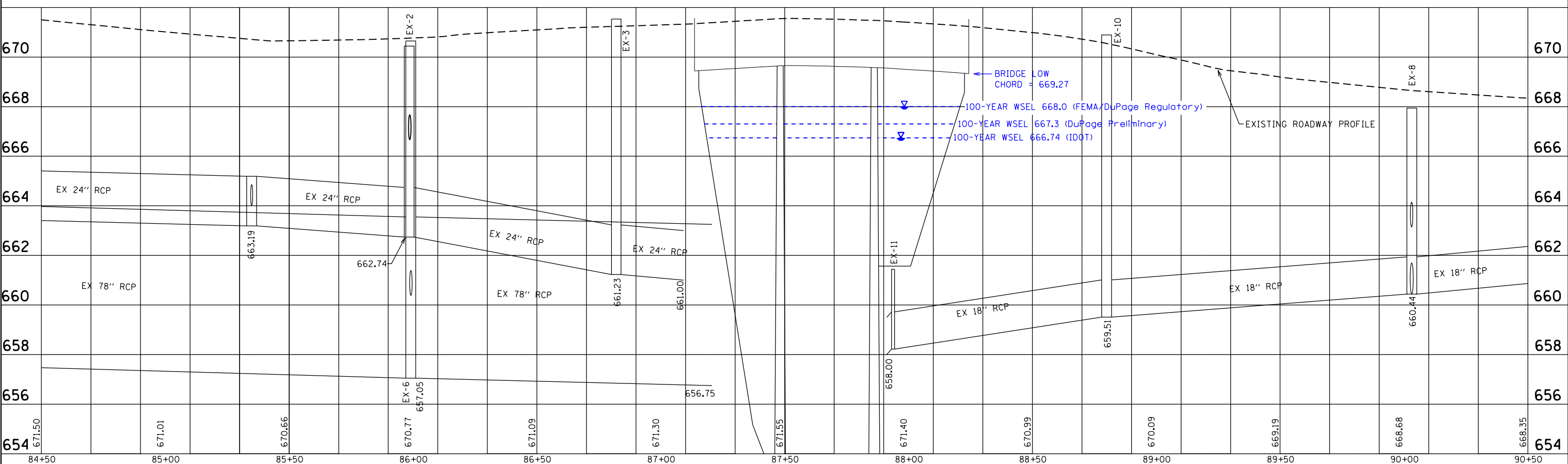
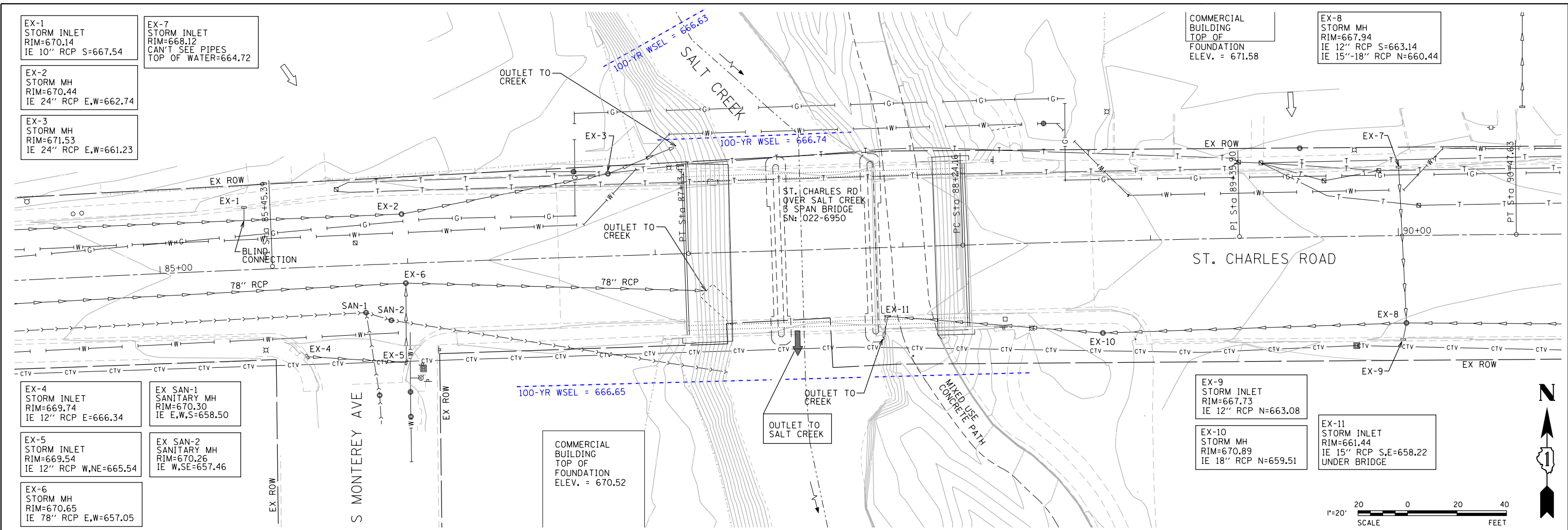
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DRAWN - VAS
CHECKED - GJS
DATE - 08-19-16

REVISED -
REVISED -
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**ST. CHARLES ROAD BRIDGE
OVER SALT CREEK**

**EXHIBIT 7A
OVERALL EXISTING DRAINAGE PLAN (EDP)**
SCALE: 1" = 50'
SHEET 1 OF 1 SHEETS
STA. 80+00 TO STA. 92+00

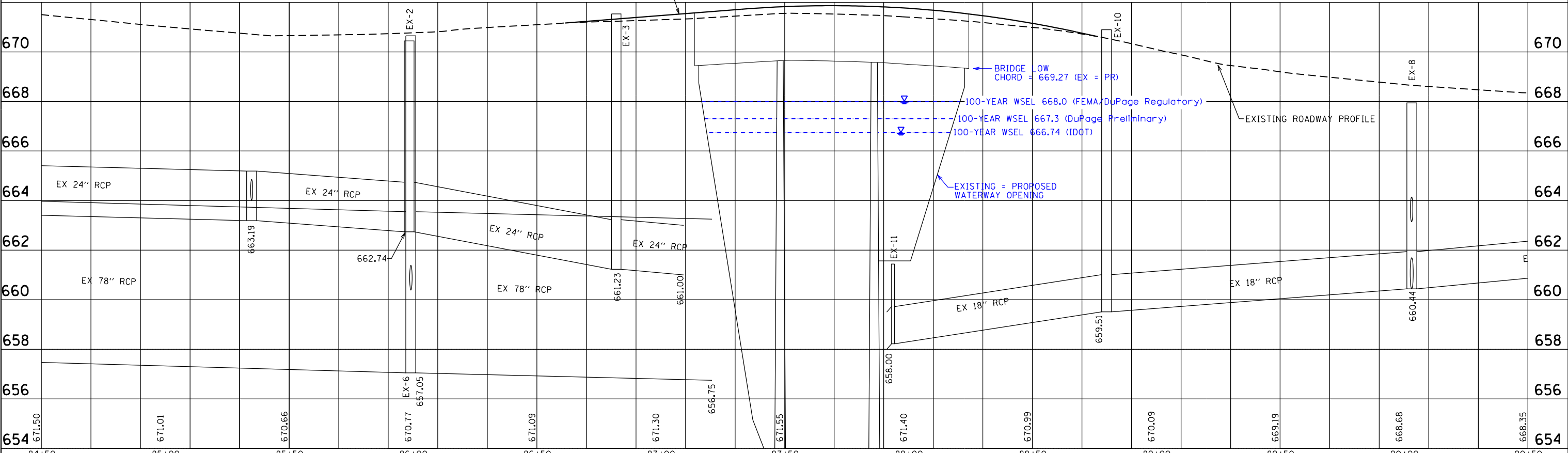
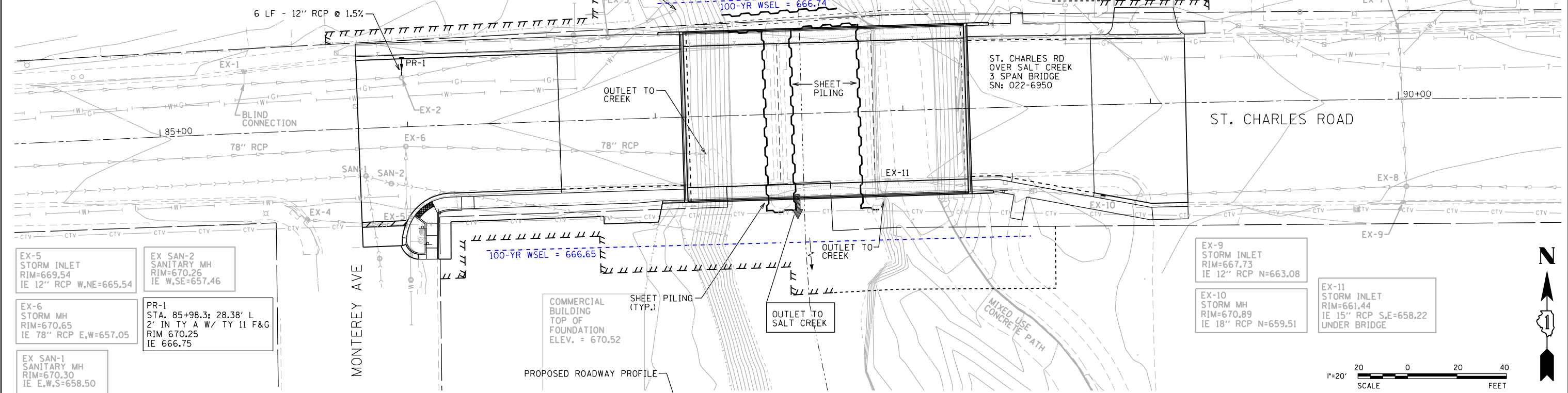
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1397	15-00094-00-BR	DUPAGE	1	1
PROJECT: BRM-4003(508)			JOB: P-91-313-15	
		ILLINOIS	LOCAL ROADS PROJECT	



- EX-1 STORM INLET
RIM=670.14
IE 10" RCP S=667.54
- EX-2 STORM MH
RIM=670.44
IE 24" RCP E,W=662.74
PR IE 666.66 N 12"
- EX-3 STORM MH
RIM=671.53
IE 24" RCP E,W=661.23
- EX-4 STORM INLET
RIM=669.74
IE 12" RCP E=666.34

NOTES:
 1. BRIDGE SUB-STRUCTURE (PIERS & ABUTMENTS) WILL REMAIN IN PLACE. BRIDGE DECK WILL BE REPLACED. BRIDGE LOW CHORD ELEVATION OF 669.27 WILL REMAIN UNCHANGED.
 2. EXISTING STORM SEWER SYSTEM TO BE MAINTAINED, ADJUST RIMS AS NEEDED.
 3. SEE EXHIBIT 7A FOR DRAINAGE PATTERNS AND FLOODWAY/FLOODPLAIN LIMITS.

- COMMERCIAL BUILDING TOP OF FOUNDATION ELEV. = 671.58
- EX-7 STORM INLET
RIM=668.12
CAN'T SEE PIPES TOP OF WATER=664.72
- EX-8 STORM MH
RIM=667.94
IE 12" RCP S=663.14
IE 15"-18" RCP N=660.44



84+50	85+00	85+50	86+00	86+50	87+00	87+50	88+00	88+50	89+00	89+50	90+00	90+50
671.50	671.01	670.66	670.77	671.09	671.30	671.55	671.40	670.99	670.09	669.19	668.68	668.35
			663.19		661.23	661.00	658.00		659.51		660.44	
			662.74			656.75						



USER NAME = vsjkes	DESIGNED - EIH	REVISED - 09/23/16
	DRAWN - EIH	REVISED - 11/15/16
PLOT SCALE = 40.0000' / in.	CHECKED - GJS	REVISED - 03/07/17
PLOT DATE = 11/12/2018	DATE - 05/12/16	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXHIBIT 8
PROPOSED DRAINAGE PLAN (PDP)
SCALE: 1"=20' SHEET 1 OF 1 SHEETS STA. 84+50.00 TO STA. 90+50.00

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1397	15-00094-00-BR	DUPAGE	1	1
PROJECT: BRM-40031508; JOB: P-91-313-15				
EXHIBIT E-3.0 ILLINOIS FED. AID PROJECT				

Worksheet 2: Runoff Curve Number

Project: St. Charles Road over Salt Creek
 Location: Villa Park (DuPage Co), IL

By: VAS Date: 12/8/2015
 Checked: SRU Date: 9/1/2016

Location Existing Conditions
Subbasin Outlet to Salt Creek

Runoff Curve Number (CN)

Soil Name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4	<input checked="" type="checkbox"/> acres <input type="checkbox"/> mi ² <input type="checkbox"/> %	
	Pavement	98			5.07	496.9
C	Grass	74			0.83	61.4
D	Grass	80			0.65	52.0
Totals =					6.55	610.3

^{1/} Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{610.28}{6.55} = \underline{93.2}$$

Use CN = 93.2

AREA = 6.55 Acres
 0.0102 Sq. Mi.

Worksheet 2: Runoff Curve Number

Project: St. Charles Road over Salt Creek
 Location: Villa Park (DuPage Co), IL

By: VAS Date: 11/12/2018
 Checked: DLM Date: 11/15/2018

Location Proposed Conditions
Subbasin Outlet to Salt Creek

Runoff Curve Number (CN)

Soil Name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4	<input checked="" type="checkbox"/> acres <input type="checkbox"/> mi ² <input type="checkbox"/> %	
	Pavement	98			5.09	498.8
C	Grass	74			0.81	59.9
D	Grass	80			0.65	52.0
Totals =					6.55	610.8

^{1/} Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{610.76}{6.55} = \underline{93.2}$$

Use CN = 93.2

AREA = 6.55 Acres
 0.0102 Sq. Mi.

DuPage County, Illinois

805B—Orthents, clayey, undulating

Map Unit Setting

National map unit symbol: 64wv
Elevation: 510 to 980 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Orthents, clayey, undulating, and similar soils: 91 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orthents, Clayey, Undulating

Setting

Landform: Ground moraines, lake plains
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Earthy fill

Typical profile

H1 - 0 to 7 inches: silty clay
H2 - 7 to 60 inches: silty clay

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 4 to 10 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low (0.02 to 0.06 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Available water storage in profile: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
***Hydrologic Soil Group:* D**

Minor Components

Ashkum

Percent of map unit: 3 percent
Landform: End moraines, ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave

Urban land

Percent of map unit: 3 percent
Down-slope shape: Linear
Across-slope shape: Linear

Bryce

Percent of map unit: 2 percent
Landform: Ground moraines, glacial lakes (relict)
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave

Aquents, clayey

Percent of map unit: 1 percent
Landform: Lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Data Source Information

Soil Survey Area: DuPage County, Illinois
Survey Area Data: Version 11, Sep 25, 2015

DuPage County, Illinois

854B—Markham-Ashkum-Beecher complex, 1 to 6 percent slopes

Map Unit Setting

National map unit symbol: 64wy
Elevation: 510 to 930 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Markham and similar soils: 40 percent
Ashkum and similar soils: 30 percent
Beecher and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Markham

Setting

Landform: End moraines, ground moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Thin mantle of loess or other silty material and in the underlying till

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 21 inches: silty clay loam
H3 - 21 to 32 inches: silty clay loam
H4 - 32 to 60 inches: silty clay loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 55 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Description of Ashkum

Setting

Landform: End moraines, ground moraines

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Colluvium and in the underlying till

Typical profile

H1 - 0 to 12 inches: silty clay loam

H2 - 12 to 29 inches: silty clay

H3 - 29 to 54 inches: silty clay loam

H4 - 54 to 60 inches: silty clay loam

Properties and qualities

Slope: 1 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Calcium carbonate, maximum in profile: 25 percent

Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Description of Beecher

Setting

Landform: End moraines, ground moraines

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Thin mantle of loess or other silty material and in the underlying till

Typical profile

H1 - 0 to 7 inches: silt loam

H2 - 7 to 24 inches: silty clay loam

H3 - 24 to 36 inches: silty clay loam

H4 - 36 to 60 inches: silty clay loam

Properties and qualities

Slope: 2 to 4 percent

Depth to restrictive feature: 24 to 45 inches to densic material

Natural drainage class: Somewhat poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 35 percent

Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

Minor Components

Orthents, clayey

Percent of map unit: 5 percent

Landform: Ground moraines, lake plains

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Data Source Information

Soil Survey Area: DuPage County, Illinois

Survey Area Data: Version 11, Sep 25, 2015

DuPage County, Illinois

3107A—Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 64tz

Elevation: 440 to 930 feet

Mean annual precipitation: 28 to 40 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 140 to 180 days

Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Sawmill and similar soils: 95 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sawmill

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

H1 - 0 to 29 inches: silty clay loam

H2 - 29 to 48 inches: silty clay loam

H3 - 48 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: Frequent

Frequency of ponding: Frequent

Calcium carbonate, maximum in profile: 20 percent

Available water storage in profile: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B/D

Minor Components

Millington

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Data Source Information

Soil Survey Area: DuPage County, Illinois

Survey Area Data: Version 11, Sep 25, 2015

NORTH SIDE INLET SPACING CALCULATIONS:

Allowable Inlet Spacing within bridge deck, west of bridge, north side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 85+33 (LP)	0.78%	2.00%	6.00%	1.0	3.00	0.060	0.1050	0.0350	0.1200	0.2221	0.1872	0.2921	0.1872	0.1050	6.48	0.90	34.5	63	41

DIST TO EDGE OF BRDGE DECK = 58' OK

Allowable Inlet Spacing along roadway, west of bridge, north side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 85+33 (LP)	0.78%	2.00%	6.00%	1.0	5.50	0.110	0.5284	0.1761	0.1700	0.5623	0.3862	0.9146	0.3862	0.5284	6.48	0.90	36.0	190	80

DIST TO 1ST EXISTING INLET = 234'

ADDITIONAL INLET REQUIRED

Allowable Inlet Spacing within bridge deck, east of bridge, north side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 90+00	2.14%	2.00%	6.00%	1.0	3.00	0.060	0.1738	0.0579	0.1200	0.3679	0.3100	0.4838	0.3100	0.1738	6.48	0.90	34.5	105	67

DIST TO EDGE OF BRDGE DECK = 58' OK

Allowable Inlet Spacing along roadway, east of bridge, north side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 90+00	2.14%	2.00%	6.00%	1.0	5.50	0.110	0.8753	0.2918	0.1700	0.9315	0.6397	1.5150	0.6397	0.8753	6.48	0.90	36.0	314	133

DIST TO 1ST EXISTING INLET = 232' OK

d(p) = DEPTH OF FLOW AT THE EDGE OF THE PAVEMENT.

Q(p) = FLOW ON THE PAVEMENT OUTSIDE OF THE INLET GRATE.

d(g) = DEPTH OF FLOW AT THE GUTTER.

Q(x) = FLOW ON THE GUTTER EXTENSION.

Q(g) = Q(g+x) - Q(x)

Q(T) = Q(g) + Q(p)

Q(BY) = Q(T) - Q(g) ALL FLOW OVER THE GRATE IS ASSUMED TO GO IN THE GRATE.

ALL DEPTHS AND DISTANCES ARE IN FEET.

ALL FLOWS ARE IN CUBIC FEET PER SECOND.

SOUTH SIDE INLET SPACING CALCULATIONS:

Allowable Inlet Spacing within bridge deck, west of bridge, south side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 85+33 (LP)	0.78%	2.00%	6.00%	1.0	3.00	0.060	0.1050	0.0350	0.1200	0.2221	0.1872	0.2921	0.1872	0.1050	6.48	0.90	34.5	63	41

DIST TO EDGE OF BRDGE DECK = 58' OK

Allowable Inlet Spacing along roadway, west of bridge, south side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 85+33 (LP)	0.78%	2.00%	6.00%	1.0	5.50	0.110	0.5284	0.1761	0.1700	0.5623	0.3862	0.9146	0.3862	0.5284	6.48	0.90	37.0	185	78

DIST TO 1ST EXISTING INLET = 171' OK

Allowable Inlet Spacing within bridge deck, east of bridge, south side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 90+00	2.14%	2.00%	6.00%	1.0	3.00	0.060	0.1738	0.0579	0.1200	0.3679	0.3100	0.4838	0.3100	0.1738	6.48	0.90	34.5	105	67

DIST TO EDGE OF BRDGE DECK = 58' OK

Allowable Inlet Spacing along roadway, east of bridge, south side

Roadway Station	Longitudinal Roadway Slope (Percent)	Transverse Roadway Slope (Percent)	Transverse Gutter Slope (Percent)	Nominal Gutter Width (ft)	Maximum Spread of Water on Pavement (ft)	Depth of Flow at Edge of Pavement d(p)	Flow on Pavement Q(p)	Flow in Gutter Extension Q(x)	Depth of Flow in Gutter d(g)	Flow in Gutter and Extension Q(g+x)	Flow in Gutter Q(g)	Maximum Allowable Flow Q(T)	Intercepted Flow Q(I)	Bypass Flow Q(BY)	10 Year Rainfall Intensity (In/Hr)	Runoff Coefficient (C)	Width of Tributary Area (Ft)	Max Distance to First Inlet Q(T) = CIA	Distance to Successive Inlets Q(I) = CIA
87+67 (HP) to 90+00	2.14%	2.00%	6.00%	1.0	5.50	0.110	0.8753	0.2918	0.1700	0.9315	0.6397	1.5150	0.6397	0.8753	6.48	0.90	49.0	231	98

DIST TO 1ST EXISTING INLET = 231 OK

d(p) = DEPTH OF FLOW AT THE EDGE OF THE PAVEMENT.

Q(p) = FLOW ON THE PAVEMENT OUTSIDE OF THE INLET GRATE.

d(g) = DEPTH OF FLOW AT THE GUTTER.

Q(x) = FLOW ON THE GUTTER EXTENSION.

Q(g) = Q(g+x) - Q(x)

Q(T) = Q(g) + Q(p)

Q(BY) = Q(T) - Q(g) ALL FLOW OVER THE GRATE IS ASSUMED TO GO IN THE GRATE.

ALL DEPTHS AND DISTANCES ARE IN FEET.

ALL FLOWS ARE IN CUBIC FEET PER SECOND.

Tab 3

Floodplain Submittal

A. IDOT Regulated Floodway
Construction Permit



Illinois Department of Transportation

Office of Highways Project Implementation / Region 1 / District 1
201 West Center Court / Schaumburg, Illinois 60196-1096

LOCAL ROADS AND STREETS

Regulated Floodway Construction Permit Approval

Village of Villa Park

Location: Saint Charles Road over Salt Creek

Section No.: 15-00094-00-BR

Project No.: BRM-4003(510)

Job No.: C-91-313-15

Existing Structure No.: 022-6950

Proposed Structure No.: 022-6950

DuPage County

December 1, 2016

Mr. Rich Salerno
Municipal Engineer
Village of Villa Park
20 South Ardmore Avenue
Villa Park, IL 60181

Dear Mr. Salerno:

Attached is the Regulated Floodway Construction Permit No. D1L-16-008 for the above-referenced project authorizing the construction of a Bridge Superstructure Replacement in the Village of Villa Park.

The project consists of a proposed bridge superstructure replacement will be Precast Prestressed Concrete Deck Beams with a Span Length of 36'-11 9/16", 38'-1/2", 36'-10 15/16" and a 116'-1" back to back of abutments. This project is located Section 3, 10, Township 39 North, Range 11 East of the 3rd Prime Meridian, DuPage County.

This Permit grants permission to the Village to only perform construction activities in a floodway.

If you have any questions or need additional information, please contact Alex Househ, Field Engineer, at extension 4410.

Very truly yours,

John Fortmann, P.E.
Region One Engineer

A handwritten signature in red ink, appearing to read 'C. Holt'.

By:
Christopher J. Holt, P.E.
Bureau Chief of Local Roads and Streets

Attachment

bcc: D. Carl Puzey, Central BB&S w/att.

S:\Gen\Wp2\Agmts & Related Corr\Villa Park\15-00094-00-BR\Villa Park-15-00094-00-BR-Floodway Permit Approval.docx

STATE OF



ILLINOIS

Permit No.: DIL-16-008

Department of Transportation

**Division of Highways
2300 South Dirksen Parkway
Springfield, IL 62764**

**REGULATED FLOODWAY CONSTRUCTION PERMIT
RIVERS, LAKES AND STREAMS ACT "615 ILCS 5"**

PERMISSION IS HEREBY GRANTED TO: Village of Villa Park
20 South Ardmore Avenue
Villa Park, IL 60181

FOR CONSTRUCTION OF: A Bridge Superstructure Replacement in the Village of Villa Park. The proposed bridge superstructure replacement will be Precast Prestressed Concrete Deck Beams with a Span Length of 36'-11 9/16", 38'-1/2", 36'-10 15/16" and a 116'-1" back to back of abutments. The project is located Section 3, 10, Township 39 North, Range 11 East of the 3rd Prime Meridian, DuPage County, as part of Section Number 15-00094-00-BR, Structure 022-6950.

IN ACCORDANCE WITH THE Application and Plan
DATED September 21, 2016 AND MADE A PART HEREOF, AND SUBJECT TO THE
TERMS SHOWN ON THE BACK HEREOF AND THE SPECIAL CONDITIONS ATTACHED
HERETO AS EXHIBIT. _____

EXAMINED AND APPROVED

A handwritten signature in blue ink, appearing to read "John K. ...".

REGIONAL ENGINEER/CENTRAL BUREAU CHIEF

11-14-16
DATE

THIS PERMIT is subject to the following conditions:

(a) This permit is granted in accordance with Rivers, Lakes And Streams Act "615 ILCS 5".

(b) This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the project or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.

(c) This permittee does not release the permittee from liability for damage to persons or property resulting from the work covered by this permit, and does not authorize any injury to private property or invasion of private rights.

(d) This permit does not relieve the permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if the permittee is required by law to obtain approval from any federal agency to do the work, this permit is not effective until the federal approval is obtained.

(e) The permittee shall, at his own expense, remove all temporary piling, cofferdams, false work, and material incidental to the construction of the project, from floodway, river, stream or lake in which the work is done. If the permittee fails to remove such structures or materials, the state may have removal made at the expense of the permittee. If future need for public navigation or public interest of any character, by the state or federal government, necessitates changes in any part of the structure or structures, such changes shall be made by and at the expense of the permittee or his successors as required by the Department of Transportation or other properly constituted agency, within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.

(f) The execution and details of the work authorized shall be subject to the supervision and approval of the Department. Department personnel shall have right of access to accomplish this purpose.

(g) Starting work on the construction authorized will be considered full acceptance by the permittee of the terms and conditions of the permit.

(h) The Department in issuing this permit has relied upon the statements and representations made by the permittee; if any statement or representation made by the permittee is found to be false, the permit may be revoked at the option of the Department; and when a permit is revoked all rights of the permittee under the permit are voided.

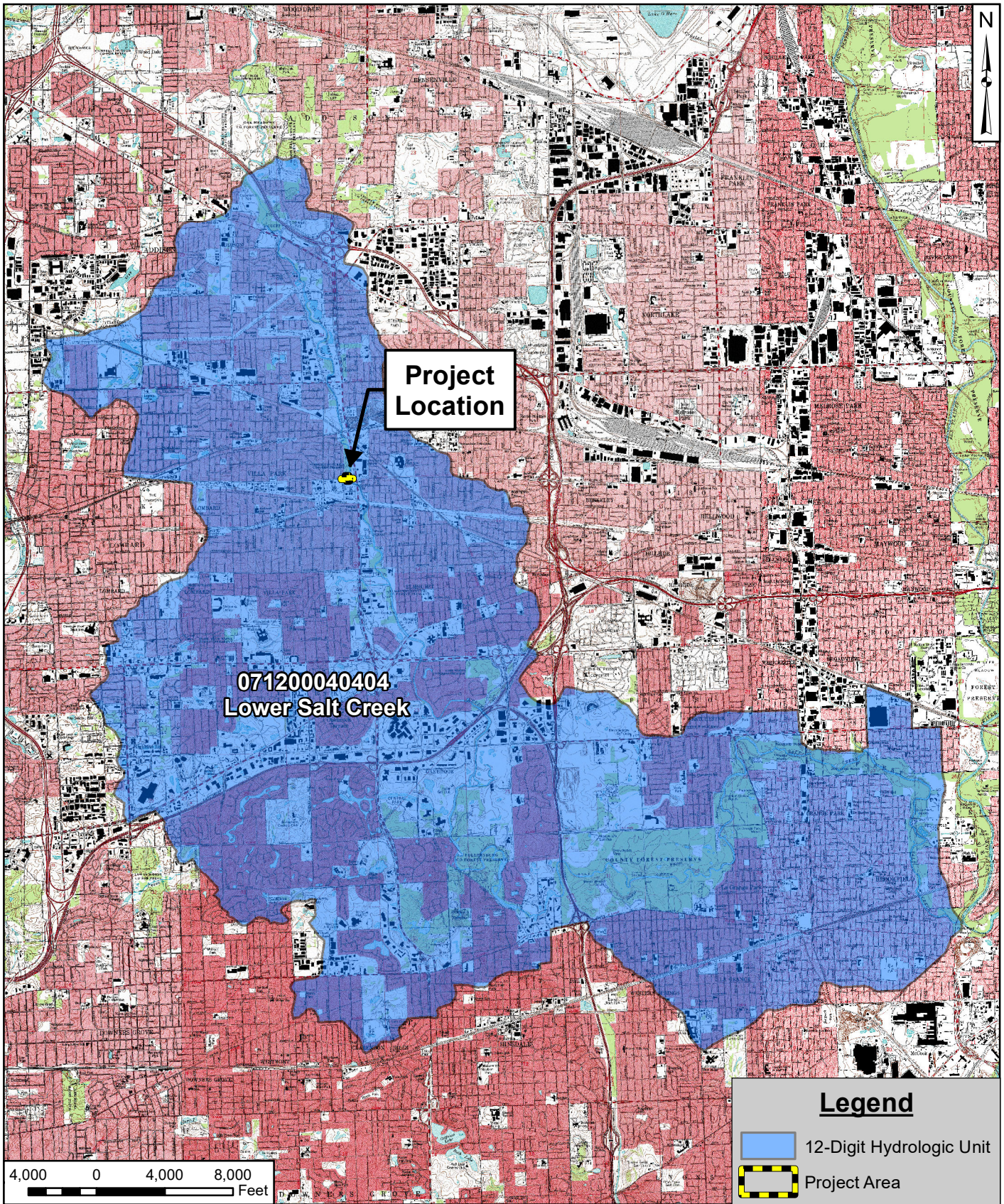
(i) If the project authorized by this permit is located in or along Lake Michigan or a meandered lake, the permittee and his successors shall make no claim whatsoever to any interest in any accretions caused by the project.

(j) In issuing this permit, the Department does not approve the adequacy of the design or structural strength or the structure or improvement.

(k) Noncompliance with the conditions stated herein will make this permit void.

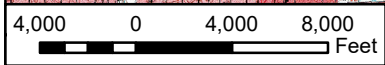
(l) If the work permitted is not initiated on or before six years from the date of issuance as shown on the front of this form, this permit shall be void.


B. Exhibits



Legend

- 12-Digit Hydrologic Unit
- Project Area



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p> <p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>PROJECT NO.: 18259</p> <p>CREATED BY: AMM</p> <p>DATE: 08/31/16</p> <p>SCALE: See Scale Bar</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p> <p>BASE LAYER: USGS Topographic Map DuPage County, Illinois (2002)</p>	<p>TITLE: 12-DIGIT HYDROLOGIC UNIT CODE (HUC) MAP</p> <p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>	<p>FIGURE: 9</p>
	<p>N:\2018\18259\Drawings\ArcGIS\Storm\HUC_18259.mxd</p>			



Photograph of downstream side of Charles Road Bridge



Photograph of upstream side of St. Charles Road Bridge, debris at west pier.



V3 COMPANIES
 7325 JANES AVENUE
 WOODRIDGE, IL
 60517630.724.9200
 PHONE
 630.724.9202 FAX
 WWW.V3CO.COM

TITLE:	SITE PHOTOGRAPHS			PROJECT:	ST. CHARLES ROAD BRIDGE OVER SALT CREEK				
CLIENT:	VILLAGE OF VILLA PARK 20 S. Ardmore Avenue Villa Park, Illinois 60181			PROJECT NO.	15228	EXHIBIT:	10	SHEET: 1	OF: 4
		FILE NAME:		DATE:	5/10/15		SCALE:	N/A	



Photograph of downstream side of Charles Road Bridge



Photograph of St. Charles Road Bridge deck, looking east.



V3 COMPANIES
 7325 JANES AVENUE
 WOODRIDGE, IL
 60517630.724.9200
 PHONE
 630.724.9202 FAX
 WWW.V3CO.COM

TITLE: SITE PHOTOGRAPHS	PROJECT: ST. CHARLES ROAD BRIDGE OVER SALT CREEK		
CLIENT: VILLAGE OF VILLA PARK 20 S. Ardmore Avenue Villa Park, Illinois 60181	PROJECT No. 15228	EXHIBIT: 10	SHEET: 2 OF: 4
	FILE NAME:	DATE: 5/10/15	SCALE: N/A



Photograph of Salt Creek channel and overbank areas upstream of St. Charles Road.



Photograph of Salt Creek channel and overbank areas downstream of St. Charles Road.



V3 COMPANIES
 7325 JANES AVENUE
 WOODRIDGE, IL
 60517630.724.9200
 PHONE
 630.724.9202 FAX
 WWW.V3CO.COM

TITLE:	SITE PHOTOGRAPHS			PROJECT:	ST. CHARLES ROAD BRIDGE OVER SALT CREEK		
CLIENT:	VILLAGE OF VILLA PARK 20 S. Ardmore Avenue Villa Park, Illinois 60181			PROJECT NO.	EXHIBIT:	SHEET: 3	
				15228	10	OF: 4	
		FILE NAME:	DATE:	SCALE:			
			5/10/15	N/A			



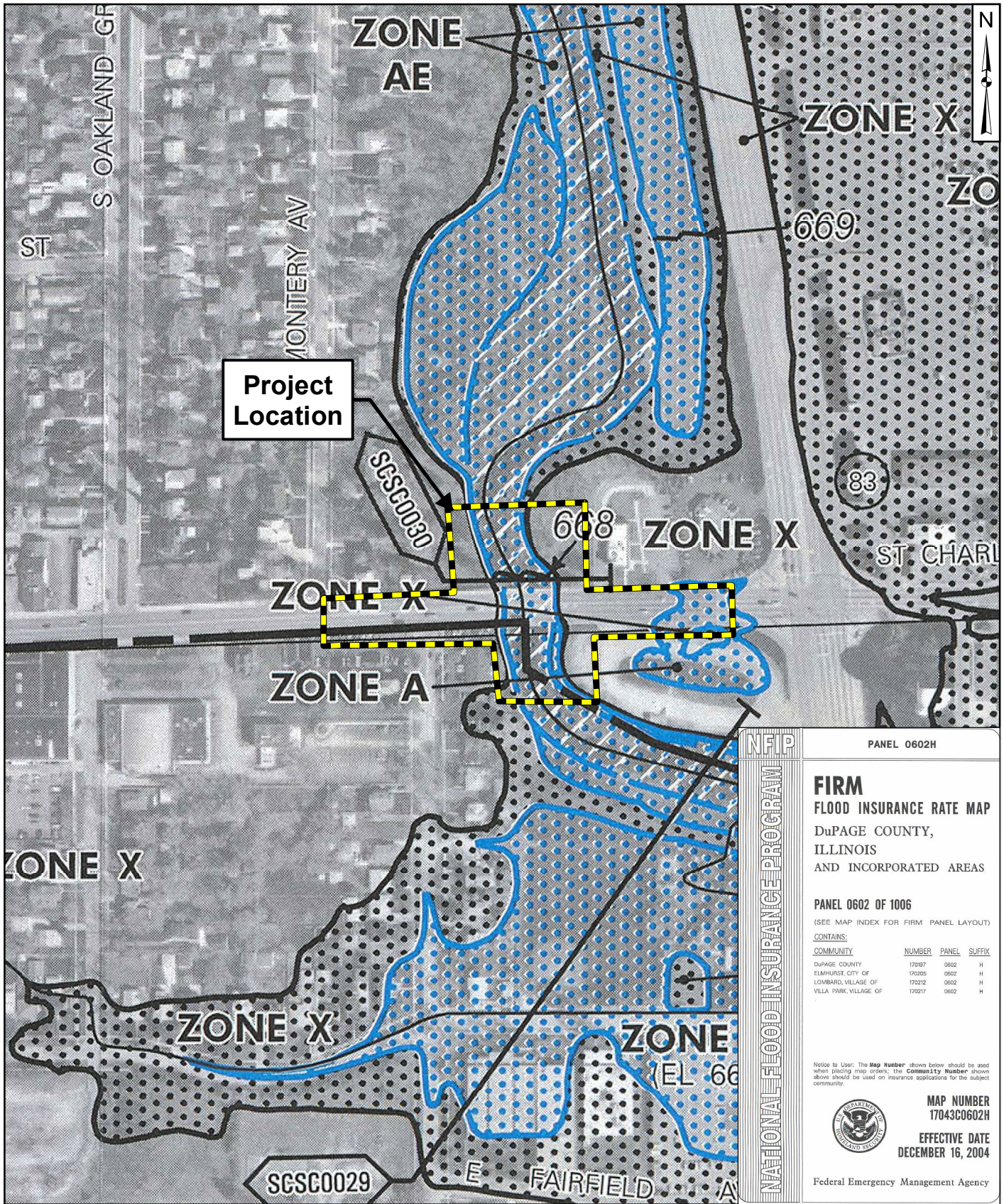
Photograph of Pedestrian Bridge downstream of St. Charles Road.

Photograph of the Route 83 Bridge downstream of the Pedestrian Bridge.



V3 COMPANIES
 7325 JANES AVENUE
 WOODRIDGE, IL
 60517630.724.9200
 PHONE
 630.724.9202 FAX
 WWW.V3CO.COM

TITLE:	SITE PHOTOGRAPHS		PROJECT:	ST. CHARLES ROAD BRIDGE OVER SALT CREEK	
CLIENT:	VILLAGE OF VILLA PARK 20 S. Ardmore Avenue Villa Park, Illinois 60181		PROJECT NO.	EXHIBIT:	SHEET: 4
			15228	10	OF: 4
			FILE NAME:	DATE:	SCALE:
				5/10/15	N/A



N
↑

ZONE X

669

83

ST CHARL

ZONE X

ZONE A

ZONE X

ZONE X

(EL 66

E FAIRFIELD

A

SCSC0029

NFP

PANEL 0602H

FIRM
FLOOD INSURANCE RATE MAP
 DuPAGE COUNTY,
 ILLINOIS
 AND INCORPORATED AREAS

PANEL 0602 OF 1006
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DUPAGE COUNTY	17097	0602	H
ELMHURST, CITY OF	170205	0602	H
LOMBARD, VILLAGE OF	170212	0602	H
VILLA PARK, VILLAGE OF	170217	0602	H

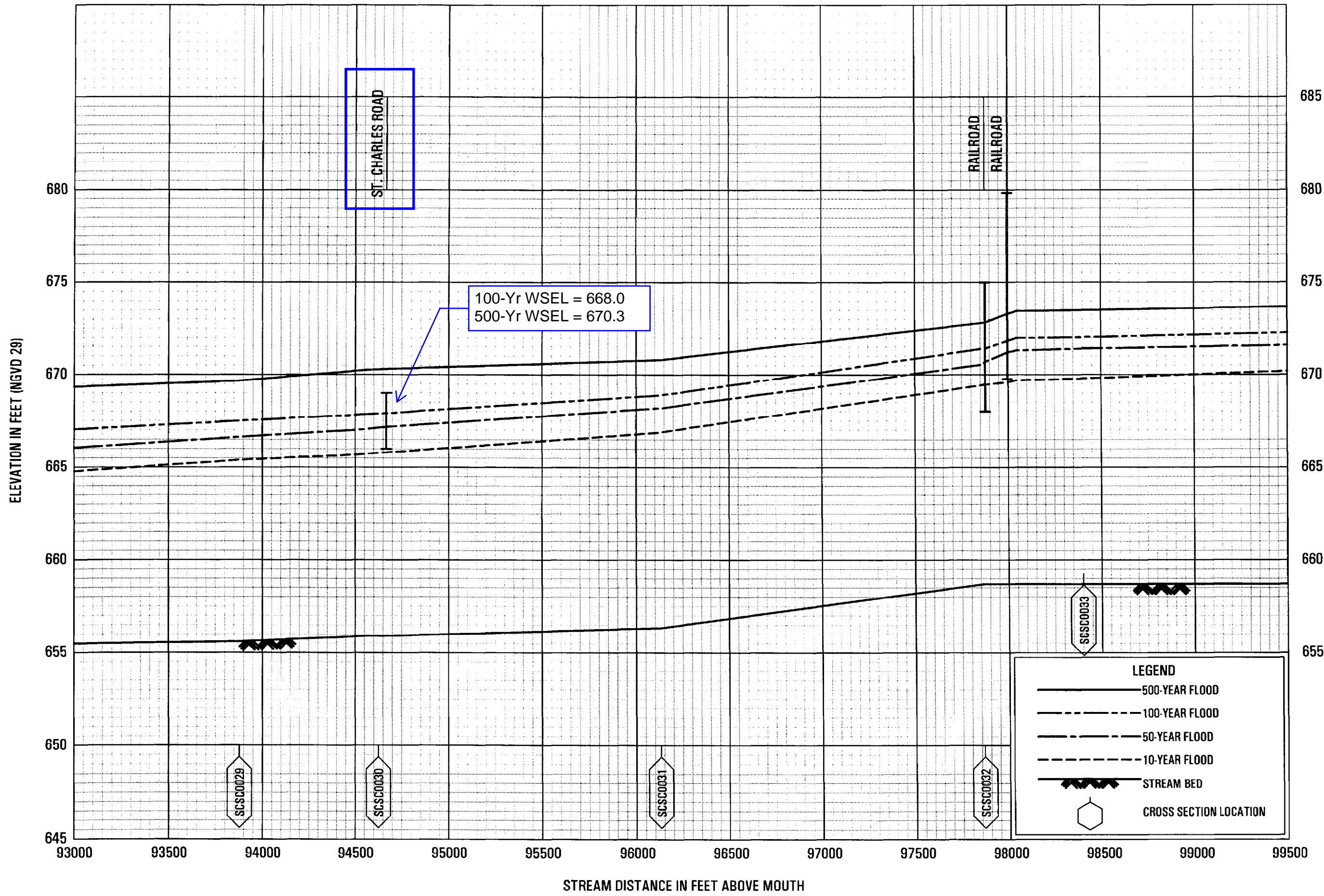
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
17043C0602H

EFFECTIVE DATE
DECEMBER 16, 2004

Federal Emergency Management Agency

 V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	FEMA FLOOD INSURANCE RATE MAP (FIRM)	
	CREATED BY: AMM	DATE: 10/05/18		
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: NTS	TITLE: FEMA FLOOD INSURANCE RATE MAP (FIRM)	SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois	

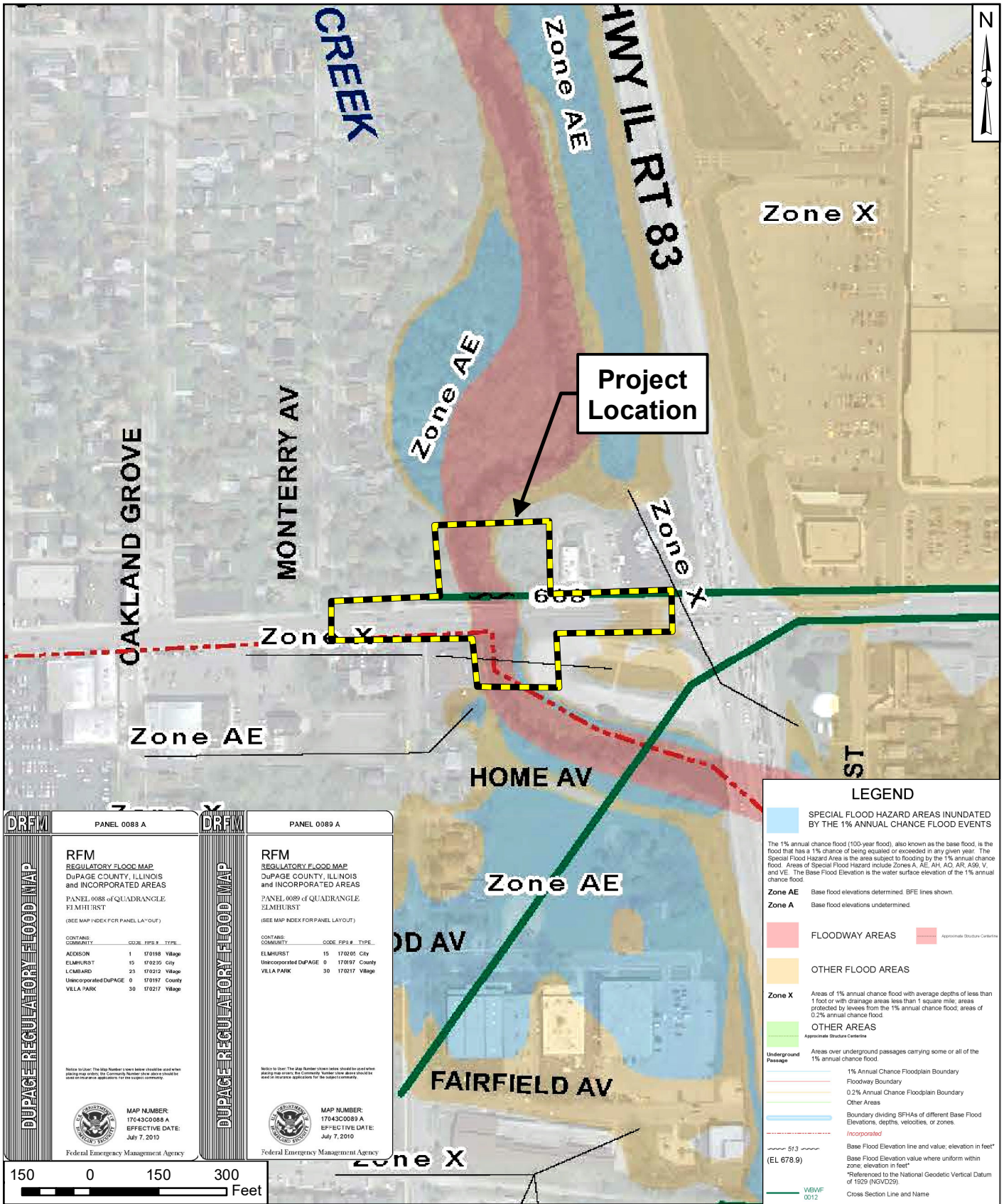


FLOOD PROFILES
SALT CREEK (SCSC)

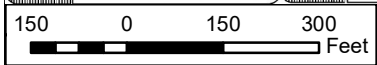
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUPAGE COUNTY, IL
AND INCORPORATED AREAS

123P

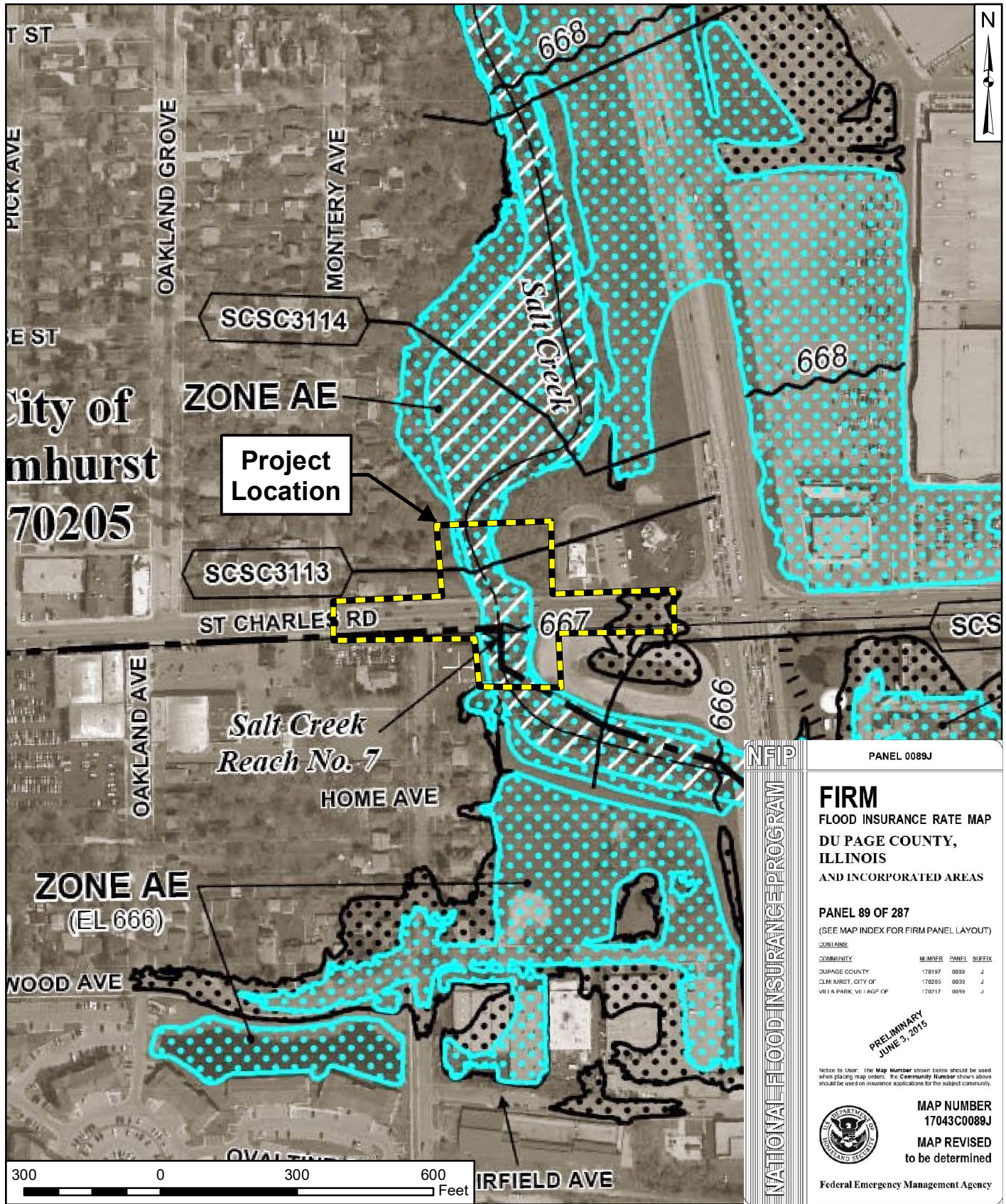
Exhibit 11B: FEMA Regulatory Profiles (2004)



<p>PANEL 0088 A</p> <p>RFM REGULATORY FLOOD MAP DUPAGE COUNTY, ILLINOIS and INCORPORATED AREAS</p> <p>PANEL 0088 of QUADRANGLE ELMHURST</p> <p>(SEE MAP INDEX FOR PANEL LAYOUT)</p> <p>CONTAINS:</p> <table border="1"> <thead> <tr> <th>COMMUNITY</th> <th>CODE</th> <th>FPS #</th> <th>TYPE</th> </tr> </thead> <tbody> <tr> <td>ACKSON</td> <td>1</td> <td>170198</td> <td>Village</td> </tr> <tr> <td>ELMHURST</td> <td>15</td> <td>170230</td> <td>City</td> </tr> <tr> <td>LUMBARD</td> <td>23</td> <td>170232</td> <td>Village</td> </tr> <tr> <td>Unincorporated DUPAGE</td> <td>0</td> <td>170187</td> <td>County</td> </tr> <tr> <td>VILLA PARK</td> <td>30</td> <td>170217</td> <td>Village</td> </tr> </tbody> </table> <p><small>Notice to User: The Map Number shown below should be used when ordering map sheets. The Community Number shown above should be used in insurance applications for the subject community.</small></p> <p>MAP NUMBER: 17043C0088 A EFFECTIVE DATE: July 7, 2010</p> <p>Federal Emergency Management Agency</p>	COMMUNITY	CODE	FPS #	TYPE	ACKSON	1	170198	Village	ELMHURST	15	170230	City	LUMBARD	23	170232	Village	Unincorporated DUPAGE	0	170187	County	VILLA PARK	30	170217	Village	<p>PANEL 0089 A</p> <p>RFM REGULATORY FLOOD MAP DUPAGE COUNTY, ILLINOIS and INCORPORATED AREAS</p> <p>PANEL 0089 of QUADRANGLE ELMHURST</p> <p>(SEE MAP INDEX FOR PANEL LAYOUT)</p> <p>CONTAINS:</p> <table border="1"> <thead> <tr> <th>COMMUNITY</th> <th>CODE</th> <th>FPS #</th> <th>TYPE</th> </tr> </thead> <tbody> <tr> <td>ELMHURST</td> <td>15</td> <td>170205</td> <td>City</td> </tr> <tr> <td>Unincorporated DUPAGE</td> <td>0</td> <td>170197</td> <td>County</td> </tr> <tr> <td>VILLA PARK</td> <td>30</td> <td>170217</td> <td>Village</td> </tr> </tbody> </table> <p><small>Notice to User: The Map Number shown below should be used when ordering map sheets. The Community Number shown above should be used in insurance applications for the subject community.</small></p> <p>MAP NUMBER: 17043C0089 A EFFECTIVE DATE: July 7, 2010</p> <p>Federal Emergency Management Agency</p>	COMMUNITY	CODE	FPS #	TYPE	ELMHURST	15	170205	City	Unincorporated DUPAGE	0	170197	County	VILLA PARK	30	170217	Village
COMMUNITY	CODE	FPS #	TYPE																																						
ACKSON	1	170198	Village																																						
ELMHURST	15	170230	City																																						
LUMBARD	23	170232	Village																																						
Unincorporated DUPAGE	0	170187	County																																						
VILLA PARK	30	170217	Village																																						
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ELMHURST	15	170205	City																																						
Unincorporated DUPAGE	0	170197	County																																						
VILLA PARK	30	170217	Village																																						



<p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p> <p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>PROJECT NO.: 18259</p> <p>CREATED BY: AMM</p> <p>DATE: 10/05/18</p> <p>SCALE: See Scale Bar</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p> <p>BASE LAYER: DuPage County RFM Panels 17043C0088 A and 17043C0089 A</p>	<p>TITLE: DUPAGE COUNTY REGULATORY FLOOD MAP (RFM)</p> <p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>	<p>FIGURE: 12A</p>
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N

PANEL 0089J

FIRM
 FLOOD INSURANCE RATE MAP
 DUPAGE COUNTY,
 ILLINOIS
 AND INCORPORATED AREAS

PANEL 89 OF 287
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COMMUNITIES

COMMUNITY	NUMBER	PANEL	SUFFIX
DUPAGE COUNTY	170197	0089	J
ELM HURST, CITY OF	170205	0039	J
VILLA PARK, VILLAGES OF	170217	0019	J

PRELIMINARY
 JUNE 3, 2015

Note to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.


MAP NUMBER
 17043C0089J

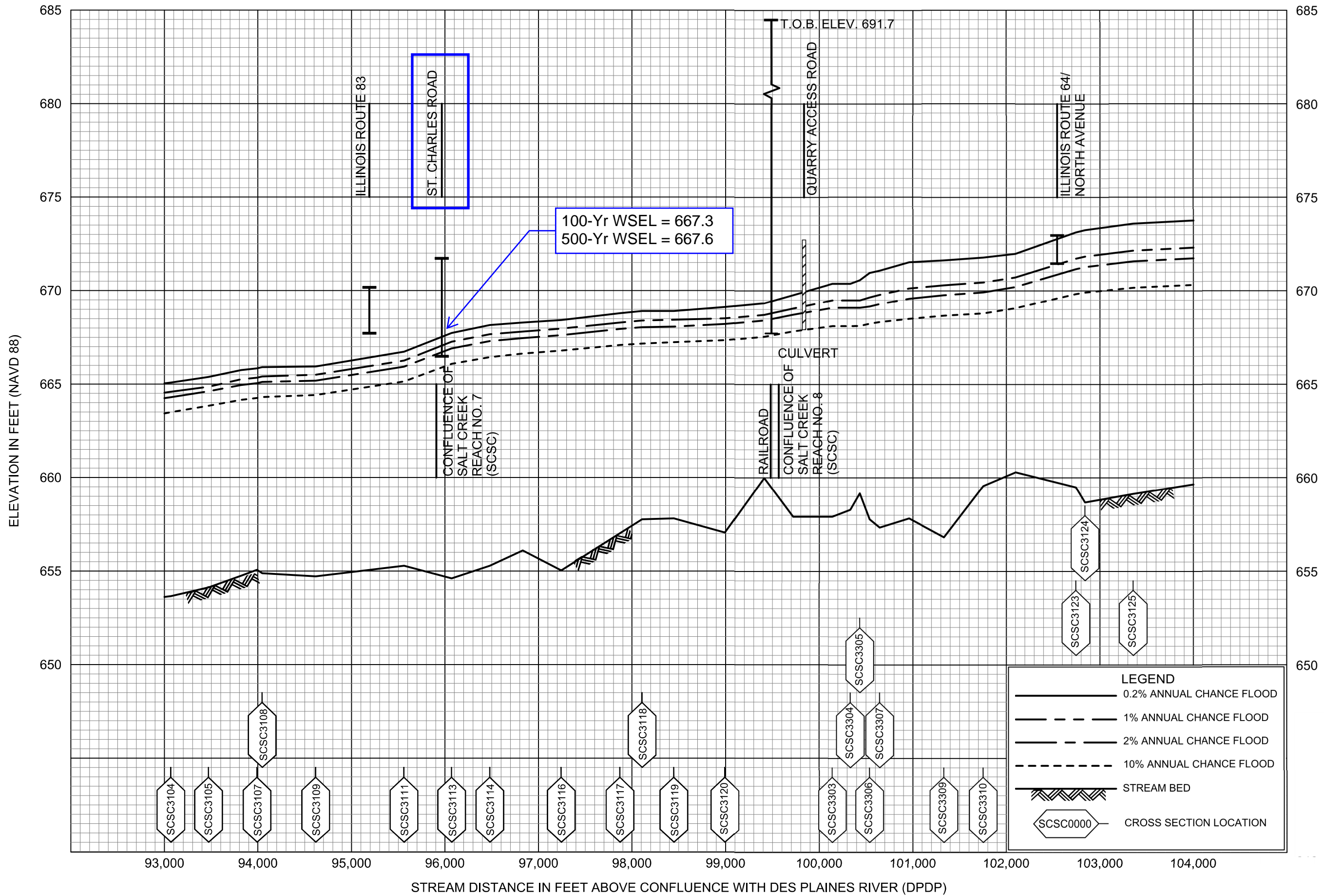
MAP REVISED
 to be determined

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM



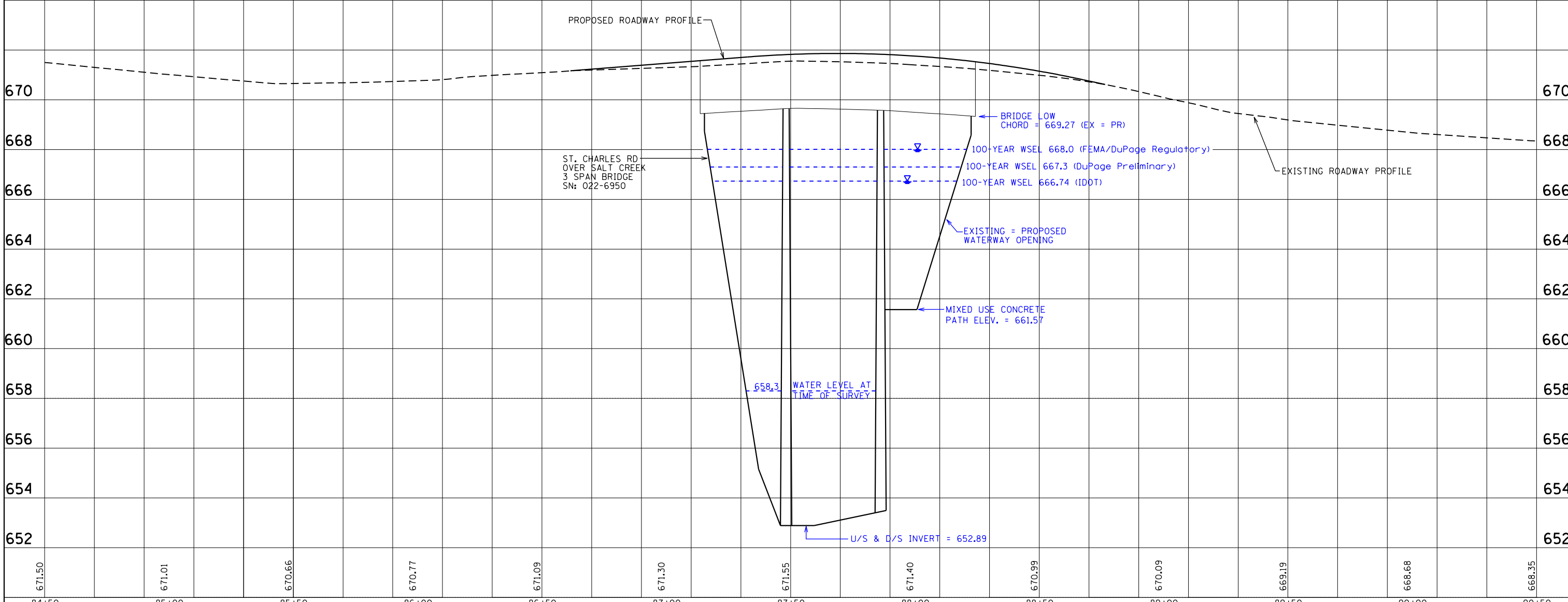
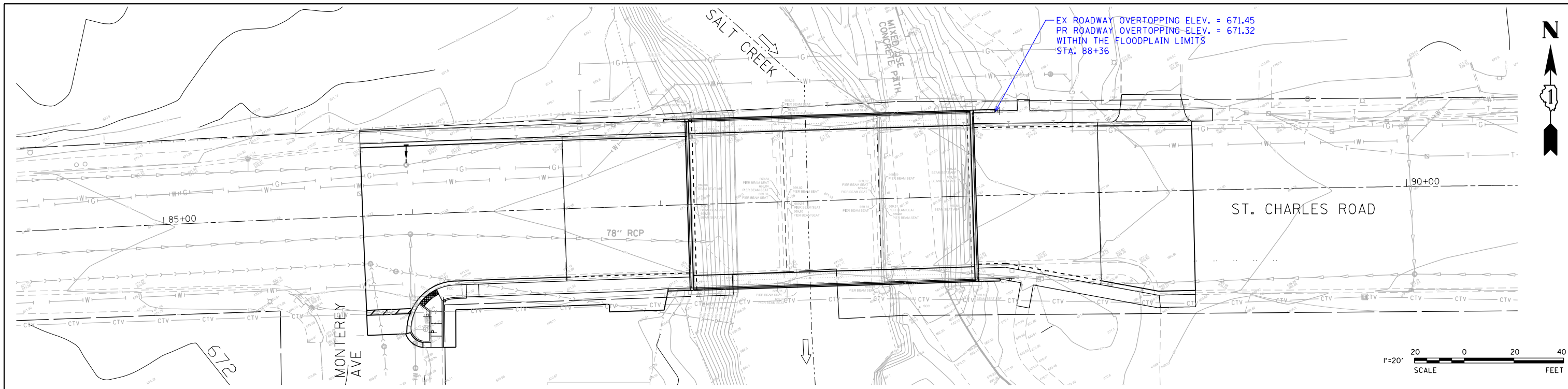
 V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	TITLE: DUPAGE COUNTY: PRELIMINARY FLOOD INSURANCE RATE MAP (FIRM)	
	CREATED BY: FJS	DATE: 11/12/18	BASE LAYER: DuPage County Preliminary FEMA Map 17043C0089J	SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: See Scale Bar			



FLOOD PROFILES
SALT CREEK (SCSC)

FEDERAL EMERGENCY MANAGEMENT AGENCY
DU PAGE COUNTY, IL
AND INCORPORATED AREAS

Exhibit 14: DuPage County Preliminary Profiles (2015)



671.50	671.01	670.66	670.77	671.09	671.30	671.55	671.40	670.99	670.09	669.19	668.68	668.35
84+50	85+00	85+50	86+00	86+50	87+00	87+50	88+00	88+50	89+00	89+50	90+00	90+50



USER NAME = vsykes	DESIGNED - VAS	REVISED -
DRAWN - VAS	REVISOR -	
PLOT SCALE = 40.0000' / in.	CHECKED - GJS	REVISOR -
PLOT DATE = 11/12/2018	DATE - 08/19/16	REVISOR -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**EXHIBIT 15
ST. CHARLES ROAD BRIDGE OVER SALT CREEK PLAN & PROFILE**

SCALE: 1"=20' SHEET 1 OF 1 SHEETS STA. 84+50.00 TO STA. 90+50.00

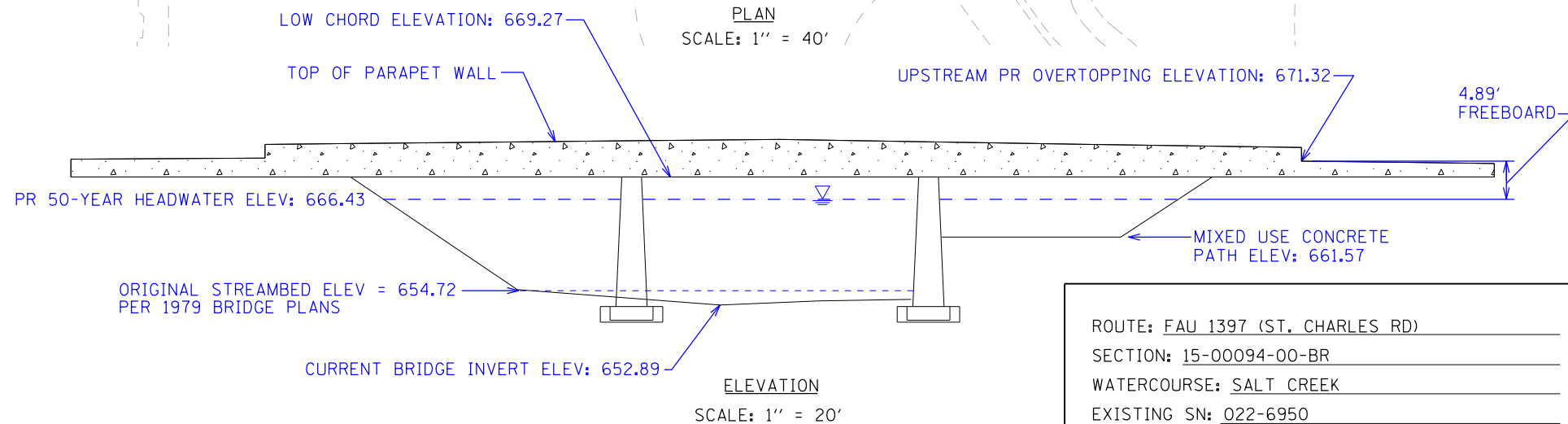
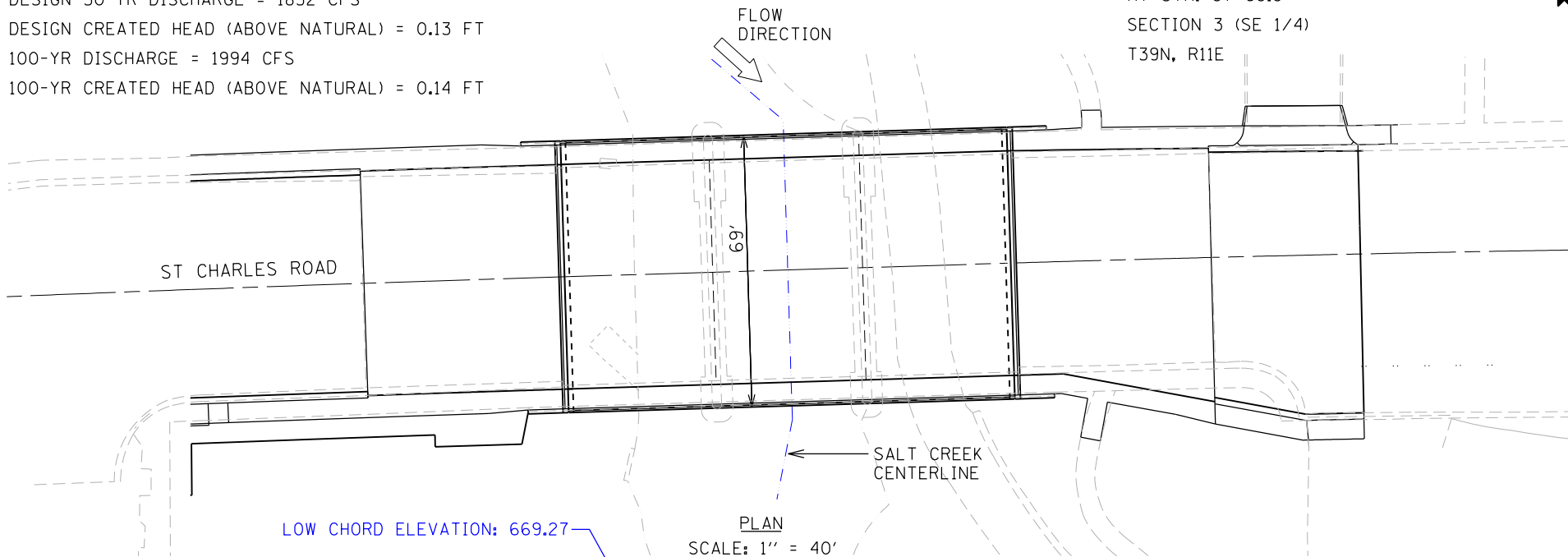
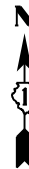
F.A.U. RTE. 1397	SECTION 15-00094-00-BR	COUNTY	TOTAL SHEETS 1	SHEET NO. 1
PROJECT: BRM-4003(508)		JOB: P-91-313-15		
ILLINOIS FED. AID PROJECT				

WATERWAY INFORMATION

DRAINAGE AREA = 92.1 SQ. MI.
EXISTING 50-YR OPENING = 822.27 SF
PROPOSED 50-YR OPENING = 822.27 SF
DESIGN 50-YR DISCHARGE = 1852 CFS
DESIGN CREATED HEAD (ABOVE NATURAL) = 0.13 FT
100-YR DISCHARGE = 1994 CFS
100-YR CREATED HEAD (ABOVE NATURAL) = 0.14 FT

LOCATION

DUPAGE COUNTY
VILLAGE OF VILLA PARK
ST. CHARLES RD. WEST OF RT. 83
AT STA. 87+68.8
SECTION 3 (SE 1/4)
T39N, R11E



WIT EXHIBIT 16
SALT CREEK / ST. CHARLES RD.
WATERWAY SKETCH

ROUTE: FAU 1397 (ST. CHARLES RD)
SECTION: 15-00094-00-BR
WATERCOURSE: SALT CREEK
EXISTING SN: 022-6950
SCALE: VARIES
PLOTTED BY: VAS DATE: 8-19-16
CHECKED BY: SRU DATE: 9-1-16
SURVEY DATED: 11-20-2015



Route: FAU 1397 (St. Charles Road)
 Waterway: Lower Salt Creek
 Section: 15-00094-00-BR
 County: DuPage

Existing SN: 022-6950
 Proposed SN: 022-6950
 Prepared by: VAS Date: 8/19/16
 Checked by: SRU Date: 9/1/16

Drainage Area = 92.13 square miles		Existing Overtopping Elev. = 671.45		at Sta. 88+36		Proposed Overtopping Elev. = 671.32		at Sta. 88+36	
Flood Event	Freq. Yr.	Discharge ft ³ /s	Waterway Opening - ft ²		Natural H.W.E. - ft	Head - ft		Headwater Elevation - ft	
			Existing	Proposed		Existing	Proposed	Existing	Proposed
	10	1484	738.36	738.36	665.41	0.12	0.12	665.53	665.53
Design	50	1852	822.27	822.27	666.30	0.13	0.13	666.43	666.43
Base	100	1994	851.14	851.14	666.60	0.14	0.14	666.74	666.74
Scour Design Check	200	2071	888.12	888.12	666.76	0.14	0.14	666.90	666.90
Overtop Existing	--	--	--	--	--	--	--	--	--
Overtop Proposed	--	--	--	--	--	--	--	--	--
Max. Calc.	500	2303	908.77	908.77	667.19	0.16	0.16	667.35	667.35

Datum:

All-Time H.W.E. & Date: 666.26 NAVD (Sept. 2008) ft
 Surveyed Normal Water Level: 658.3 ft

10-Year Velocity through Existing Structure = 1.6 ft/s
 10-Year Velocity through Proposed Structure = 1.6 ft/s
 2-Yr. Flow Rate = 994 ft³/s

EXISTING STRUCTURE

PROPOSED STRUCTURE

Type: Precast prestress concrete deck beam bridge
 Length/Width: 113' -1" span / 68' width
 # Spans/Cells: 3
 Low Chord: 669.27
 Skew: 90 (relative to road)
 Clearance: 2.97' (low chord - Nat. 50-yr HWE)
 Bridge Flow Line: 652.89 (u/s) 652.89 (d/s)
 Low E.O.P: 671.45
 Freeboard: 5.02' (low eop - Ex 50-yr headwater)
 Culvert Inverts: N/A (u/s) N/A (d/s)

Type: Precast prestress concrete deck beam bridge
 Length Of Span: 113' -1" span / 69' width
 # Spans: 3
 Low Chord: 669.27
 Skew: 90 (relative to road)
 Clearance: 2.97' (low chord - Nat. 50-yr HWE)
 Bridge Flow Line: 652.89 (u/s) 652.89 (d/s)
 Low E.O.P: 671.32
 Freeboard: 4.89' (low eop - Pr 50-yr headwater)

EXHIBIT 17

C. April 2013 Elmhurst Gage Data

USGS 05531300 SALT CREEK AT ELMHURST, IL

Available data for this site

Location map



GO

Dupage County, Illinois

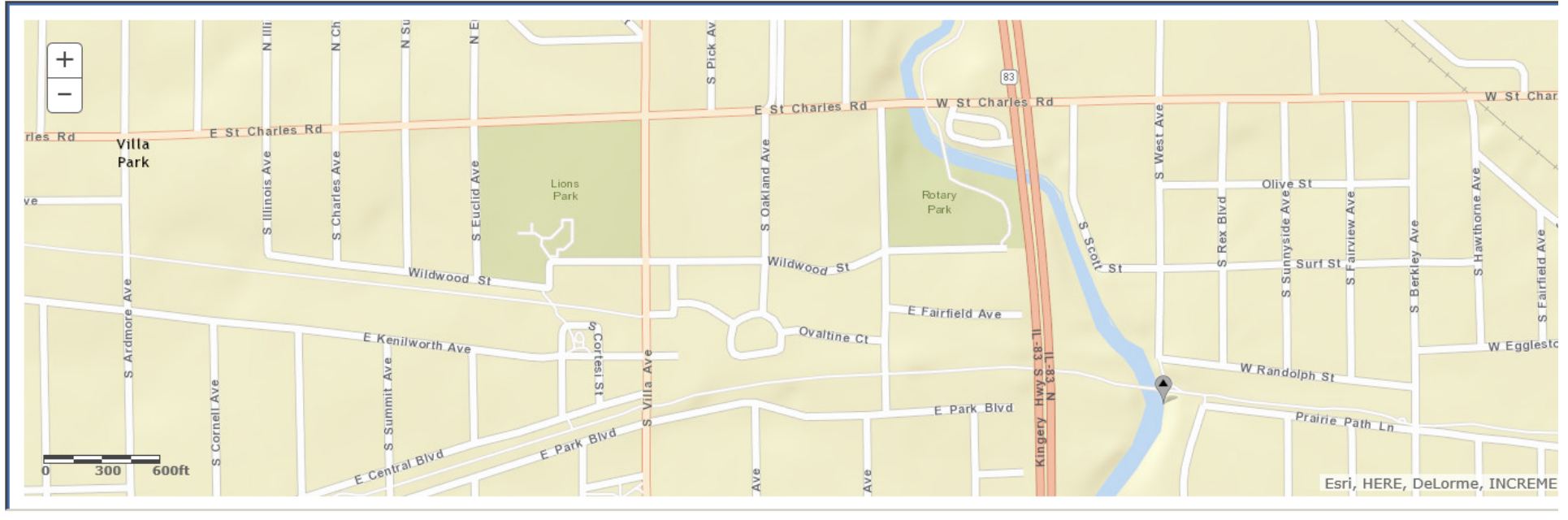
Hydrologic Unit Code 07120004

Latitude 41°53'10", Longitude 87°57'33" NAD27

Drainage area 91.5 square miles

Gage datum 651.93 feet above NGVD29

Location of the site in Illinois



Summary Gage Data:

Elmhurst Gage

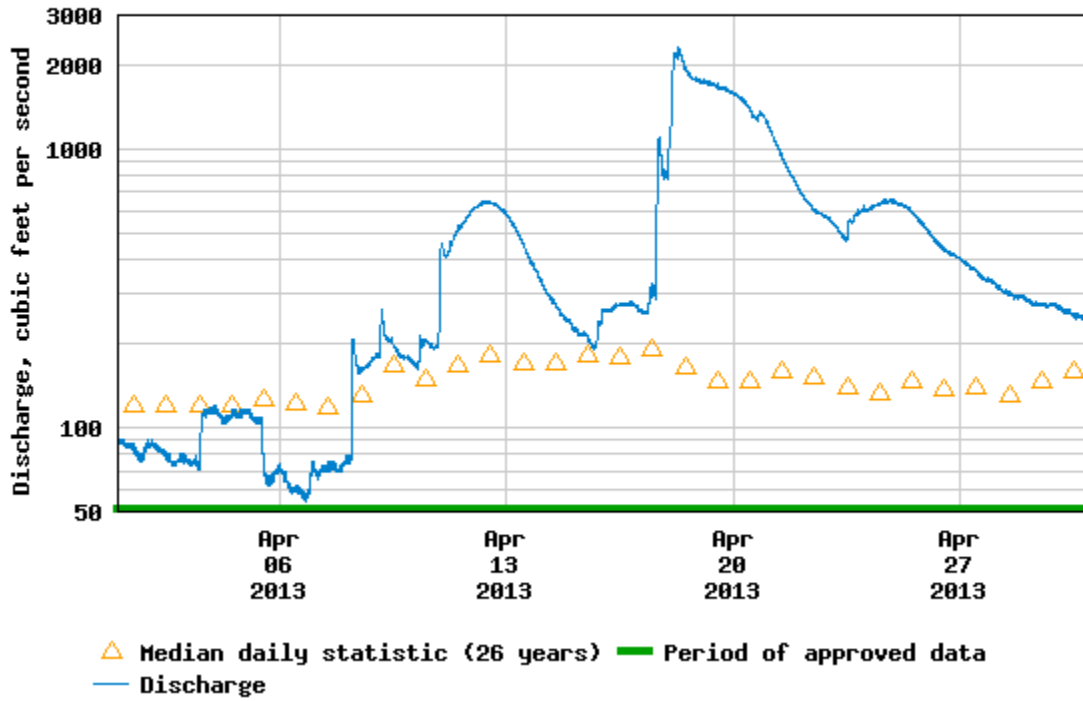
April 2013 Flood Data:

Gage location is just downstream of the HEC-RAS models most downstream cross-section 94390.14

Gage Peak Discharge =	2290 cfs	(4/18/2013)	
94390.14 X-Section 500-Yr Q =	2277 cfs		April 2013 was a 500-year event per the regulatory model Q's
94390.14 X-Section 100-Yr Q =	1973 cfs		
Gage Peak Elevation =	665.54	(4/18/2013)	
94390.14 X-Section 500-Yr Elev =	666.29		
94390.14 X-Section 100-Yr Elev =	665.74		
Gage Datum	651.93	NGVD29	
Gage Peak Height =	13.90	(4/18/2013)	
Datum correction to NGVD88	-0.29		
	665.54		
Bridge 500-year WSEL via model (u/s end, 95964) =	667.54		
Bridge 100-year WSEL via model (u/s end, 95964) =	666.93		
Gage elevation extrapolated to bridge location =	666.74		April 2013 was a 100-year event per the regulatory model WSEL's

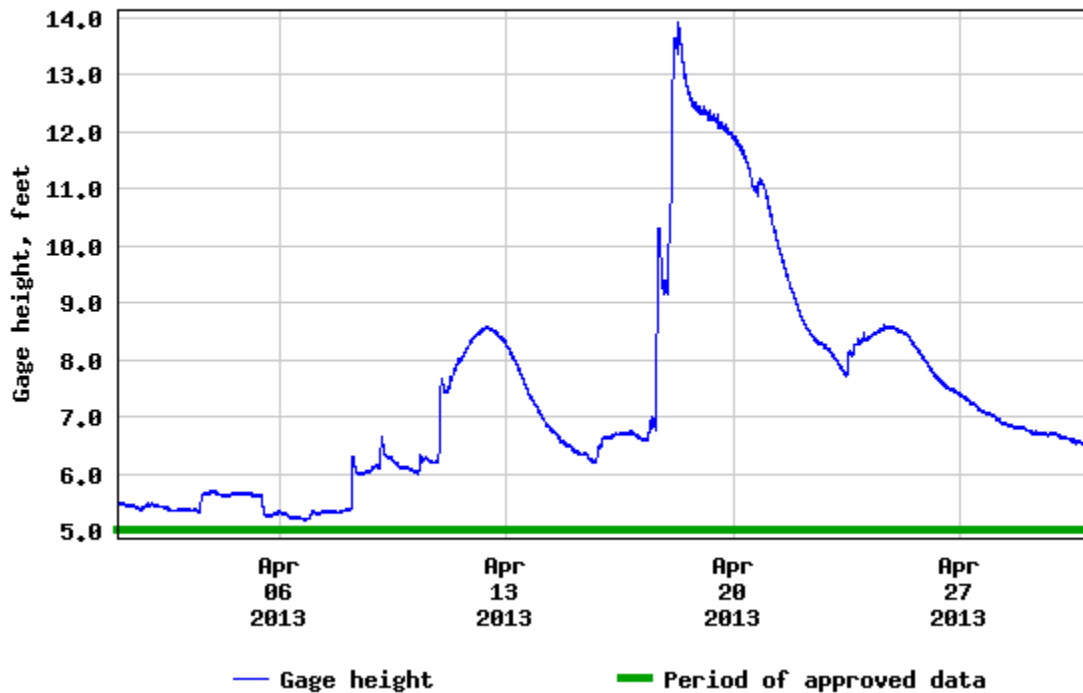


USGS 05531300 SALT CREEK AT ELMHURST, IL





USGS 05531300 SALT CREEK AT ELMHURST, IL



April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/16/2013	17:20	6.73	279
USGS	4/16/2013	17:25	6.73	279
USGS	4/16/2013	17:30	6.74	280
USGS	4/16/2013	17:35	6.73	279
USGS	4/16/2013	17:40	6.73	279
USGS	4/16/2013	17:45	6.71	275
USGS	4/16/2013	17:50	6.74	280
USGS	4/16/2013	17:55	6.73	279
USGS	4/16/2013	18:00	6.72	277
USGS	4/16/2013	18:05	6.74	280
USGS	4/16/2013	18:10	6.73	279
USGS	4/16/2013	18:15	6.73	279
USGS	4/16/2013	18:20	6.72	277
USGS	4/16/2013	18:25	6.72	277
USGS	4/16/2013	18:30	6.74	280
USGS	4/16/2013	18:35	6.74	280
USGS	4/16/2013	18:40	6.75	282
USGS	4/16/2013	18:45	6.74	280
USGS	4/16/2013	18:50	6.72	277
USGS	4/16/2013	18:55	6.73	279
USGS	4/16/2013	19:00	6.73	279
USGS	4/16/2013	19:05	6.73	279
USGS	4/16/2013	19:10	6.72	277
USGS	4/16/2013	19:15	6.71	275
USGS	4/16/2013	19:20	6.74	280
USGS	4/16/2013	19:25	6.74	280
USGS	4/16/2013	19:30	6.73	279
USGS	4/16/2013	19:35	6.73	279
USGS	4/16/2013	19:40	6.74	280
USGS	4/16/2013	19:45	6.74	280
USGS	4/16/2013	19:50	6.75	282
USGS	4/16/2013	19:55	6.75	282
USGS	4/16/2013	20:00	6.74	280
USGS	4/16/2013	20:05	6.74	280
USGS	4/16/2013	20:10	6.74	280
USGS	4/16/2013	20:15	6.73	279
USGS	4/16/2013	20:20	6.74	280
USGS	4/16/2013	20:25	6.74	280
USGS	4/16/2013	20:30	6.74	280
USGS	4/16/2013	20:35	6.75	282
USGS	4/16/2013	20:40	6.74	280
USGS	4/16/2013	20:45	6.73	279
USGS	4/16/2013	20:50	6.73	279
USGS	4/16/2013	20:55	6.74	280

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/16/2013	21:00	6.73	279
USGS	4/16/2013	21:05	6.73	279
USGS	4/16/2013	21:10	6.72	277
USGS	4/16/2013	21:15	6.73	279
USGS	4/16/2013	21:20	6.70	273
USGS	4/16/2013	21:25	6.72	277
USGS	4/16/2013	21:30	6.73	279
USGS	4/16/2013	21:35	6.72	277
USGS	4/16/2013	21:40	6.72	277
USGS	4/16/2013	21:45	6.71	275
USGS	4/16/2013	21:50	6.72	277
USGS	4/16/2013	21:55	6.70	273
USGS	4/16/2013	22:00	6.70	273
USGS	4/16/2013	22:05	6.71	275
USGS	4/16/2013	22:10	6.71	275
USGS	4/16/2013	22:15	6.71	275
USGS	4/16/2013	22:20	6.72	277
USGS	4/16/2013	22:25	6.71	275
USGS	4/16/2013	22:30	6.69	272
USGS	4/16/2013	22:35	6.70	273
USGS	4/16/2013	22:40	6.70	273
USGS	4/16/2013	22:45	6.70	273
USGS	4/16/2013	22:50	6.69	272
USGS	4/16/2013	22:55	6.70	273
USGS	4/16/2013	23:00	6.71	275
USGS	4/16/2013	23:05	6.70	273
USGS	4/16/2013	23:10	6.71	275
USGS	4/16/2013	23:15	6.68	270
USGS	4/16/2013	23:20	6.70	273
USGS	4/16/2013	23:25	6.68	270
USGS	4/16/2013	23:30	6.69	272
USGS	4/16/2013	23:35	6.69	272
USGS	4/16/2013	23:40	6.70	273
USGS	4/16/2013	23:45	6.69	272
USGS	4/16/2013	23:50	6.71	275
USGS	4/16/2013	23:55	6.70	273
USGS	4/17/2013	0:00	6.70	273
USGS	4/17/2013	0:05	6.68	270
USGS	4/17/2013	0:10	6.68	270
USGS	4/17/2013	0:15	6.69	272
USGS	4/17/2013	0:20	6.67	268
USGS	4/17/2013	0:30	6.69	272
USGS	4/17/2013	0:35	6.68	270
USGS	4/17/2013	0:40	6.67	268

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	0:45	6.68	270
USGS	4/17/2013	0:50	6.67	268
USGS	4/17/2013	0:55	6.66	267
USGS	4/17/2013	1:00	6.67	268
USGS	4/17/2013	1:05	6.66	267
USGS	4/17/2013	1:10	6.65	265
USGS	4/17/2013	1:15	6.64	263
USGS	4/17/2013	1:20	6.64	263
USGS	4/17/2013	1:25	6.66	267
USGS	4/17/2013	1:30	6.66	267
USGS	4/17/2013	1:35	6.67	268
USGS	4/17/2013	1:40	6.65	265
USGS	4/17/2013	1:45	6.65	265
USGS	4/17/2013	1:50	6.65	265
USGS	4/17/2013	1:55	6.63	261
USGS	4/17/2013	2:00	6.65	265
USGS	4/17/2013	2:05	6.66	267
USGS	4/17/2013	2:10	6.62	260
USGS	4/17/2013	2:15	6.65	265
USGS	4/17/2013	2:20	6.63	261
USGS	4/17/2013	2:25	6.63	261
USGS	4/17/2013	2:30	6.64	263
USGS	4/17/2013	2:35	6.63	261
USGS	4/17/2013	2:40	6.63	261
USGS	4/17/2013	2:45	6.65	265
USGS	4/17/2013	2:50	6.66	267
USGS	4/17/2013	2:55	6.63	261
USGS	4/17/2013	3:00	6.63	261
USGS	4/17/2013	3:05	6.62	260
USGS	4/17/2013	3:10	6.63	261
USGS	4/17/2013	3:15	6.63	261
USGS	4/17/2013	3:20	6.62	260
USGS	4/17/2013	3:25	6.63	261
USGS	4/17/2013	3:30	6.63	261
USGS	4/17/2013	3:35	6.64	263
USGS	4/17/2013	3:40	6.64	263
USGS	4/17/2013	3:45	6.62	260
USGS	4/17/2013	3:50	6.63	261
USGS	4/17/2013	3:55	6.63	261
USGS	4/17/2013	4:00	6.63	261
USGS	4/17/2013	4:05	6.62	260
USGS	4/17/2013	4:10	6.62	260
USGS	4/17/2013	4:15	6.62	260
USGS	4/17/2013	4:20	6.60	256

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	4:25	6.60	256
USGS	4/17/2013	4:30	6.62	260
USGS	4/17/2013	4:35	6.62	260
USGS	4/17/2013	4:40	6.64	263
USGS	4/17/2013	4:45	6.64	263
USGS	4/17/2013	4:50	6.61	258
USGS	4/17/2013	4:55	6.63	261
USGS	4/17/2013	5:00	6.61	258
USGS	4/17/2013	5:05	6.62	260
USGS	4/17/2013	5:10	6.62	260
USGS	4/17/2013	5:15	6.62	260
USGS	4/17/2013	5:20	6.62	260
USGS	4/17/2013	5:25	6.62	260
USGS	4/17/2013	5:30	6.60	256
USGS	4/17/2013	5:35	6.62	260
USGS	4/17/2013	5:40	6.60	256
USGS	4/17/2013	5:45	6.61	258
USGS	4/17/2013	5:50	6.62	260
USGS	4/17/2013	5:55	6.60	256
USGS	4/17/2013	6:00	6.60	256
USGS	4/17/2013	6:05	6.61	258
USGS	4/17/2013	6:10	6.60	256
USGS	4/17/2013	6:15	6.59	255
USGS	4/17/2013	6:20	6.60	256
USGS	4/17/2013	6:25	6.60	256
USGS	4/17/2013	6:30	6.61	258
USGS	4/17/2013	6:35	6.61	258
USGS	4/17/2013	6:40	6.59	255
USGS	4/17/2013	6:45	6.61	258
USGS	4/17/2013	6:50	6.61	258
USGS	4/17/2013	6:55	6.61	258
USGS	4/17/2013	7:00	6.60	256
USGS	4/17/2013	7:05	6.62	260
USGS	4/17/2013	7:10	6.61	258
USGS	4/17/2013	7:15	6.60	256
USGS	4/17/2013	7:20	6.60	256
USGS	4/17/2013	7:25	6.60	256
USGS	4/17/2013	7:30	6.60	256
USGS	4/17/2013	7:35	6.60	256
USGS	4/17/2013	7:40	6.60	256
USGS	4/17/2013	7:45	6.59	255
USGS	4/17/2013	7:50	6.60	256
USGS	4/17/2013	7:55	6.62	260
USGS	4/17/2013	8:00	6.60	256

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	8:05	6.60	256
USGS	4/17/2013	8:10	6.63	261
USGS	4/17/2013	8:15	6.61	258
USGS	4/17/2013	8:20	6.61	258
USGS	4/17/2013	8:25	6.60	256
USGS	4/17/2013	8:30	6.61	258
USGS	4/17/2013	8:35	6.62	260
USGS	4/17/2013	8:40	6.62	260
USGS	4/17/2013	8:45	6.60	256
USGS	4/17/2013	8:50	6.61	258
USGS	4/17/2013	8:55	6.64	263
USGS	4/17/2013	9:00	6.65	265
USGS	4/17/2013	9:05	6.66	267
USGS	4/17/2013	9:10	6.68	270
USGS	4/17/2013	9:15	6.73	279
USGS	4/17/2013	9:20	6.72	277
USGS	4/17/2013	9:25	6.76	284
USGS	4/17/2013	9:30	6.77	286
USGS	4/17/2013	9:35	6.77	286
USGS	4/17/2013	9:40	6.79	289
USGS	4/17/2013	9:45	6.78	287
USGS	4/17/2013	9:50	6.81	293
USGS	4/17/2013	9:55	6.83	296
USGS	4/17/2013	10:00	6.83	296
USGS	4/17/2013	10:05	6.87	303
USGS	4/17/2013	10:10	6.89	307
USGS	4/17/2013	10:15	6.91	311
USGS	4/17/2013	10:20	6.91	311
USGS	4/17/2013	10:25	6.94	316
USGS	4/17/2013	10:30	6.94	316
USGS	4/17/2013	10:35	6.95	318
USGS	4/17/2013	10:40	6.96	320
USGS	4/17/2013	10:45	6.94	316
USGS	4/17/2013	10:50	6.93	314
USGS	4/17/2013	10:55	6.92	312
USGS	4/17/2013	11:00	6.91	311
USGS	4/17/2013	11:05	6.91	311
USGS	4/17/2013	11:10	6.89	307
USGS	4/17/2013	11:15	6.87	303
USGS	4/17/2013	11:20	6.88	305
USGS	4/17/2013	11:25	6.87	303
USGS	4/17/2013	11:30	6.85	300
USGS	4/17/2013	11:35	6.84	298
USGS	4/17/2013	11:40	6.83	296

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	11:45	6.83	296
USGS	4/17/2013	11:50	6.82	295
USGS	4/17/2013	11:55	6.81	293
USGS	4/17/2013	12:00	6.82	295
USGS	4/17/2013	12:05	6.87	303
USGS	4/17/2013	12:10	6.95	318
USGS	4/17/2013	12:15	7.02	331
USGS	4/17/2013	12:20	6.95	318
USGS	4/17/2013	12:25	6.92	312
USGS	4/17/2013	12:30	6.92	312
USGS	4/17/2013	12:35	6.90	309
USGS	4/17/2013	12:40	6.89	307
USGS	4/17/2013	12:45	6.89	307
USGS	4/17/2013	12:50	6.87	303
USGS	4/17/2013	12:55	6.88	305
USGS	4/17/2013	13:00	6.87	303
USGS	4/17/2013	13:05	6.86	302
USGS	4/17/2013	13:10	6.85	300
USGS	4/17/2013	13:15	6.84	298
USGS	4/17/2013	13:20	6.84	298
USGS	4/17/2013	13:25	6.84	298
USGS	4/17/2013	13:30	6.84	298
USGS	4/17/2013	13:35	6.84	298
USGS	4/17/2013	13:40	6.82	295
USGS	4/17/2013	13:45	6.83	296
USGS	4/17/2013	13:50	6.82	295
USGS	4/17/2013	13:55	6.82	295
USGS	4/17/2013	14:00	6.80	291
USGS	4/17/2013	14:05	6.80	291
USGS	4/17/2013	14:10	6.80	291
USGS	4/17/2013	14:15	6.78	287
USGS	4/17/2013	14:20	6.81	293
USGS	4/17/2013	14:25	6.81	293
USGS	4/17/2013	14:30	6.89	307
USGS	4/17/2013	14:35	7.01	329
USGS	4/17/2013	14:40	7.30	383
USGS	4/17/2013	14:45	7.59	439
USGS	4/17/2013	14:50	7.74	469
USGS	4/17/2013	14:55	7.89	500
USGS	4/17/2013	15:00	8.01	525
USGS	4/17/2013	15:05	8.09	542
USGS	4/17/2013	15:10	8.20	565
USGS	4/17/2013	15:15	8.39	606
USGS	4/17/2013	15:20	8.56	643

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	15:25	8.86	710
USGS	4/17/2013	15:30	9.22	794
USGS	4/17/2013	15:35	9.63	895
USGS	4/17/2013	15:40	9.91	972
USGS	4/17/2013	15:45	10.05	1010
USGS	4/17/2013	15:50	10.18	1050
USGS	4/17/2013	15:55	10.22	1060
USGS	4/17/2013	16:00	10.25	1070
USGS	4/17/2013	16:05	10.27	1070
USGS	4/17/2013	16:10	10.29	1080
USGS	4/17/2013	16:15	10.25	1070
USGS	4/17/2013	16:20	10.26	1070
USGS	4/17/2013	16:25	10.24	1070
USGS	4/17/2013	16:30	10.25	1070
USGS	4/17/2013	16:35	10.28	1080
USGS	4/17/2013	16:40	10.30	1080
USGS	4/17/2013	16:45	10.31	1090
USGS	4/17/2013	16:50	10.28	1080
USGS	4/17/2013	16:55	10.23	1060
USGS	4/17/2013	17:00	10.22	1060
USGS	4/17/2013	17:05	10.23	1060
USGS	4/17/2013	17:10	10.23	1060
USGS	4/17/2013	17:15	10.25	1070
USGS	4/17/2013	17:20	10.22	1060
USGS	4/17/2013	17:25	10.19	1050
USGS	4/17/2013	17:30	10.18	1050
USGS	4/17/2013	17:35	10.16	1040
USGS	4/17/2013	17:40	10.15	1040
USGS	4/17/2013	17:45	10.11	1030
USGS	4/17/2013	17:50	10.01	1000
USGS	4/17/2013	17:55	9.95	983
USGS	4/17/2013	18:00	9.87	961
USGS	4/17/2013	18:05	9.82	947
USGS	4/17/2013	18:10	9.81	944
USGS	4/17/2013	18:15	9.79	939
USGS	4/17/2013	18:20	9.76	930
USGS	4/17/2013	18:25	9.69	911
USGS	4/17/2013	18:30	9.63	895
USGS	4/17/2013	18:35	9.59	884
USGS	4/17/2013	18:40	9.59	884
USGS	4/17/2013	18:45	9.59	884
USGS	4/17/2013	18:50	9.59	884
USGS	4/17/2013	18:55	9.53	868
USGS	4/17/2013	19:00	9.49	858

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	19:05	9.42	841
USGS	4/17/2013	19:10	9.42	841
USGS	4/17/2013	19:15	9.41	838
USGS	4/17/2013	19:20	9.41	838
USGS	4/17/2013	19:25	9.39	834
USGS	4/17/2013	19:30	9.33	819
USGS	4/17/2013	19:35	9.27	805
USGS	4/17/2013	19:40	9.24	798
USGS	4/17/2013	19:45	9.19	787
USGS	4/17/2013	19:50	9.16	780
USGS	4/17/2013	19:55	9.15	777
USGS	4/17/2013	20:00	9.18	784
USGS	4/17/2013	20:05	9.21	791
USGS	4/17/2013	20:10	9.24	798
USGS	4/17/2013	20:15	9.24	798
USGS	4/17/2013	20:20	9.19	787
USGS	4/17/2013	20:25	9.19	787
USGS	4/17/2013	20:30	9.24	798
USGS	4/17/2013	20:35	9.30	812
USGS	4/17/2013	20:40	9.29	810
USGS	4/17/2013	20:45	9.27	805
USGS	4/17/2013	20:50	9.27	805
USGS	4/17/2013	20:55	9.32	817
USGS	4/17/2013	21:00	9.36	827
USGS	4/17/2013	21:05	9.41	838
USGS	4/17/2013	21:10	9.38	831
USGS	4/17/2013	21:15	9.36	827
USGS	4/17/2013	21:20	9.34	822
USGS	4/17/2013	21:25	9.33	819
USGS	4/17/2013	21:30	9.36	827
USGS	4/17/2013	21:35	9.39	834
USGS	4/17/2013	21:40	9.36	827
USGS	4/17/2013	21:45	9.30	812
USGS	4/17/2013	21:50	9.29	810
USGS	4/17/2013	21:55	9.26	803
USGS	4/17/2013	22:00	9.22	794
USGS	4/17/2013	22:05	9.20	789
USGS	4/17/2013	22:10	9.21	791
USGS	4/17/2013	22:15	9.23	796
USGS	4/17/2013	22:20	9.27	805
USGS	4/17/2013	22:25	9.20	789
USGS	4/17/2013	22:30	9.19	787
USGS	4/17/2013	22:35	9.18	784
USGS	4/17/2013	22:40	9.16	780

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/17/2013	22:45	9.20	789
USGS	4/17/2013	22:50	9.26	803
USGS	4/17/2013	22:55	9.30	812
USGS	4/17/2013	23:00	9.27	805
USGS	4/17/2013	23:05	9.25	801
USGS	4/17/2013	23:10	9.27	805
USGS	4/17/2013	23:15	9.37	829
USGS	4/17/2013	23:20	9.44	846
USGS	4/17/2013	23:25	9.52	865
USGS	4/17/2013	23:30	9.57	879
USGS	4/17/2013	23:35	9.55	873
USGS	4/17/2013	23:40	9.63	895
USGS	4/17/2013	23:45	9.69	911
USGS	4/17/2013	23:50	9.78	936
USGS	4/17/2013	23:55	9.89	966
USGS	4/18/2013	0:00	9.92	975
USGS	4/18/2013	0:05	10.01	1000
USGS	4/18/2013	0:10	10.06	1010
USGS	4/18/2013	0:15	10.11	1030
USGS	4/18/2013	0:20	10.17	1050
USGS	4/18/2013	0:25	10.23	1060
USGS	4/18/2013	0:30	10.28	1080
USGS	4/18/2013	0:35	10.33	1090
USGS	4/18/2013	0:40	10.36	1100
USGS	4/18/2013	0:45	10.40	1110
USGS	4/18/2013	0:50	10.41	1110
USGS	4/18/2013	0:55	10.44	1120
USGS	4/18/2013	1:00	10.41	1110
USGS	4/18/2013	1:05	10.42	1120
USGS	4/18/2013	1:10	10.48	1140
USGS	4/18/2013	1:15	10.51	1140
USGS	4/18/2013	1:20	10.58	1160
USGS	4/18/2013	1:25	10.61	1170
USGS	4/18/2013	1:30	10.67	1190
USGS	4/18/2013	1:35	10.70	1200
USGS	4/18/2013	1:40	10.76	1220
USGS	4/18/2013	1:45	10.81	1230
USGS	4/18/2013	1:50	10.88	1260
USGS	4/18/2013	1:55	10.90	1260
USGS	4/18/2013	2:00	10.97	1280
USGS	4/18/2013	2:05	11.04	1300
USGS	4/18/2013	2:10	11.13	1330
USGS	4/18/2013	2:15	11.24	1370
USGS	4/18/2013	2:20	11.33	1400

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/18/2013	2:25	11.51	1450
USGS	4/18/2013	2:30	11.65	1500
USGS	4/18/2013	2:35	11.87	1570
USGS	4/18/2013	2:40	12.08	1640
USGS	4/18/2013	2:45	12.29	1710
USGS	4/18/2013	2:50	12.45	1770
USGS	4/18/2013	2:55	12.59	1810
USGS	4/18/2013	3:00	12.73	1860
USGS	4/18/2013	3:05	12.84	1900
USGS	4/18/2013	3:10	12.96	1940
USGS	4/18/2013	3:15	13.08	1990
USGS	4/18/2013	3:20	13.17	2020
USGS	4/18/2013	3:25	13.27	2060
USGS	4/18/2013	3:30	13.32	2070
USGS	4/18/2013	3:35	13.41	2110
USGS	4/18/2013	3:40	13.46	2130
USGS	4/18/2013	3:45	13.51	2140
USGS	4/18/2013	3:50	13.48	2130
USGS	4/18/2013	3:55	13.53	2150
USGS	4/18/2013	4:00	13.55	2160
USGS	4/18/2013	4:05	13.55	2160
USGS	4/18/2013	4:10	13.58	2170
USGS	4/18/2013	4:15	13.57	2170
USGS	4/18/2013	4:20	13.60	2180
USGS	4/18/2013	4:25	13.59	2170
USGS	4/18/2013	4:30	13.65	2200
USGS	4/18/2013	4:35	13.64	2190
USGS	4/18/2013	4:40	13.65	2200
USGS	4/18/2013	4:45	13.64	2190
USGS	4/18/2013	4:50	13.63	2190
USGS	4/18/2013	4:55	13.62	2180
USGS	4/18/2013	5:00	13.63	2190
USGS	4/18/2013	5:05	13.59	2170
USGS	4/18/2013	5:10	13.62	2180
USGS	4/18/2013	5:15	13.61	2180
USGS	4/18/2013	5:20	13.59	2170
USGS	4/18/2013	5:25	13.58	2170
USGS	4/18/2013	5:30	13.53	2150
USGS	4/18/2013	5:35	13.57	2170
USGS	4/18/2013	5:40	13.55	2160
USGS	4/18/2013	5:45	13.54	2150
USGS	4/18/2013	5:50	13.52	2150
USGS	4/18/2013	5:55	13.50	2140
USGS	4/18/2013	6:00	13.46	2130

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	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/18/2013	6:05	13.43	2110
USGS	4/18/2013	6:10	13.42	2110
USGS	4/18/2013	6:15	13.39	2100
USGS	4/18/2013	6:20	13.36	2090
USGS	4/18/2013	6:25	13.44	2120
USGS	4/18/2013	6:30	13.56	2160
USGS	4/18/2013	6:35	13.69	2210
USGS	4/18/2013	6:40	13.74	2230
USGS	4/18/2013	6:45	13.84	2270
USGS	4/18/2013	6:50	13.86	2270
USGS	4/18/2013	6:55	13.90	2290
USGS	4/18/2013	7:00	13.89	2290
USGS	4/18/2013	7:05	13.89	2290
USGS	4/18/2013	7:10	13.88	2280
USGS	4/18/2013	7:15	13.87	2280
USGS	4/18/2013	7:20	13.87	2280
USGS	4/18/2013	7:25	13.86	2270
USGS	4/18/2013	7:30	13.82	2260
USGS	4/18/2013	7:35	13.81	2260
USGS	4/18/2013	7:40	13.78	2240
USGS	4/18/2013	7:45	13.76	2240
USGS	4/18/2013	7:50	13.73	2230
USGS	4/18/2013	7:55	13.69	2210
USGS	4/18/2013	8:00	13.67	2200
USGS	4/18/2013	8:05	13.65	2200
USGS	4/18/2013	8:10	13.66	2200
USGS	4/18/2013	8:15	13.65	2200
USGS	4/18/2013	8:20	13.62	2180
USGS	4/18/2013	8:25	13.62	2180
USGS	4/18/2013	8:30	13.61	2180
USGS	4/18/2013	8:35	13.61	2180
USGS	4/18/2013	8:40	13.59	2170
USGS	4/18/2013	8:45	13.55	2160
USGS	4/18/2013	8:50	13.58	2170
USGS	4/18/2013	8:55	13.55	2160
USGS	4/18/2013	9:00	13.54	2150
USGS	4/18/2013	9:05	13.52	2150
USGS	4/18/2013	9:10	13.41	2110
USGS	4/18/2013	9:15	13.47	2130
USGS	4/18/2013	9:20	13.47	2130
USGS	4/18/2013	9:25	13.46	2130
USGS	4/18/2013	9:30	13.45	2120
USGS	4/18/2013	9:35	13.42	2110
USGS	4/18/2013	9:40	13.42	2110

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/18/2013	9:45	13.37	2090
USGS	4/18/2013	9:50	13.35	2080
USGS	4/18/2013	9:55	13.34	2080
USGS	4/18/2013	10:00	13.28	2060
USGS	4/18/2013	10:05	13.25	2050
USGS	4/18/2013	10:10	13.28	2060
USGS	4/18/2013	10:15	13.27	2060
USGS	4/18/2013	10:20	13.26	2050
USGS	4/18/2013	10:25	13.23	2040
USGS	4/18/2013	10:30	13.23	2040
USGS	4/18/2013	10:35	13.22	2040
USGS	4/18/2013	10:40	13.22	2040
USGS	4/18/2013	10:45	13.17	2020
USGS	4/18/2013	10:50	13.18	2020
USGS	4/18/2013	10:55	13.17	2020
USGS	4/18/2013	11:00	13.14	2010
USGS	4/18/2013	11:05	13.12	2000
USGS	4/18/2013	11:10	13.05	1980
USGS	4/18/2013	11:15	13.07	1980
USGS	4/18/2013	11:20	13.03	1970
USGS	4/18/2013	11:25	13.04	1970
USGS	4/18/2013	11:30	13.07	1980
USGS	4/18/2013	11:35	13.08	1990
USGS	4/18/2013	11:40	13.04	1970
USGS	4/18/2013	11:45	13.05	1980
USGS	4/18/2013	11:50	13.02	1970
USGS	4/18/2013	11:55	12.94	1940
USGS	4/18/2013	12:00	12.97	1950
USGS	4/18/2013	12:05	12.98	1950
USGS	4/18/2013	12:10	13.00	1960
USGS	4/18/2013	12:15	12.97	1950
USGS	4/18/2013	12:20	12.96	1940
USGS	4/18/2013	12:25	12.93	1930
USGS	4/18/2013	12:30	12.91	1930
USGS	4/18/2013	12:35	12.91	1930
USGS	4/18/2013	12:40	12.90	1920
USGS	4/18/2013	12:45	12.88	1920
USGS	4/18/2013	12:50	12.89	1920
USGS	4/18/2013	12:55	12.89	1920
USGS	4/18/2013	13:00	12.87	1910
USGS	4/18/2013	13:05	12.85	1910
USGS	4/18/2013	13:10	12.85	1910
USGS	4/18/2013	13:15	12.82	1890
USGS	4/18/2013	13:20	12.83	1900

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/18/2013	13:25	12.80	1890
USGS	4/18/2013	13:30	12.81	1890
USGS	4/18/2013	13:35	12.81	1890
USGS	4/18/2013	13:40	12.79	1880
USGS	4/18/2013	13:45	12.79	1880
USGS	4/18/2013	13:50	12.76	1870
USGS	4/18/2013	13:55	12.78	1880
USGS	4/18/2013	14:00	12.74	1870
USGS	4/18/2013	14:05	12.70	1850
USGS	4/18/2013	14:10	12.72	1860
USGS	4/18/2013	14:15	12.73	1860
USGS	4/18/2013	14:20	12.72	1860
USGS	4/18/2013	14:25	12.73	1860
USGS	4/18/2013	14:30	12.71	1860
USGS	4/18/2013	14:35	12.71	1860
USGS	4/18/2013	14:40	12.69	1850
USGS	4/18/2013	14:45	12.70	1850
USGS	4/18/2013	14:50	12.70	1850
USGS	4/18/2013	14:55	12.65	1830
USGS	4/18/2013	15:00	12.67	1840
USGS	4/18/2013	15:05	12.68	1850
USGS	4/18/2013	15:10	12.65	1830
USGS	4/18/2013	15:15	12.66	1840
USGS	4/18/2013	15:20	12.65	1830
USGS	4/18/2013	15:25	12.64	1830
USGS	4/18/2013	15:30	12.61	1820
USGS	4/18/2013	15:35	12.65	1830
USGS	4/18/2013	15:40	12.57	1810
USGS	4/18/2013	15:45	12.63	1830
USGS	4/18/2013	15:50	12.56	1800
USGS	4/18/2013	15:55	12.60	1820
USGS	4/18/2013	16:00	12.57	1810
USGS	4/18/2013	16:05	12.57	1810
USGS	4/18/2013	16:10	12.56	1800
USGS	4/18/2013	16:15	12.60	1820
USGS	4/18/2013	16:20	12.58	1810
USGS	4/18/2013	16:25	12.55	1800
USGS	4/18/2013	16:30	12.54	1800
USGS	4/18/2013	16:35	12.54	1800
USGS	4/18/2013	16:40	12.49	1780
USGS	4/18/2013	16:45	12.49	1780
USGS	4/18/2013	16:50	12.53	1790
USGS	4/18/2013	16:55	12.54	1800
USGS	4/18/2013	17:00	12.53	1790

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/18/2013	17:05	12.55	1800
USGS	4/18/2013	17:10	12.59	1810
USGS	4/18/2013	17:15	12.52	1790
USGS	4/18/2013	17:20	12.53	1790
USGS	4/18/2013	17:25	12.51	1790
USGS	4/18/2013	17:30	12.47	1770
USGS	4/18/2013	17:35	12.51	1790
USGS	4/18/2013	17:40	12.53	1790
USGS	4/18/2013	17:45	12.46	1770
USGS	4/18/2013	17:50	12.51	1790
USGS	4/18/2013	17:55	12.49	1780
USGS	4/18/2013	18:00	12.47	1770
USGS	4/18/2013	18:05	12.45	1770
USGS	4/18/2013	18:10	12.47	1770
USGS	4/18/2013	18:15	12.42	1760
USGS	4/18/2013	18:20	12.50	1780
USGS	4/18/2013	18:25	12.45	1770
USGS	4/18/2013	18:30	12.43	1760
USGS	4/18/2013	18:35	12.47	1770
USGS	4/18/2013	18:40	12.49	1780
USGS	4/18/2013	18:45	12.47	1770
USGS	4/18/2013	18:50	12.47	1770
USGS	4/18/2013	18:55	12.47	1770
USGS	4/18/2013	19:00	12.46	1770
USGS	4/18/2013	19:05	12.43	1760
USGS	4/18/2013	19:10	12.46	1770
USGS	4/18/2013	19:15	12.44	1760
USGS	4/18/2013	19:20	12.42	1760
USGS	4/18/2013	19:25	12.45	1770
USGS	4/18/2013	19:30	12.43	1760
USGS	4/18/2013	19:35	12.45	1770
USGS	4/18/2013	19:40	12.42	1760
USGS	4/18/2013	19:45	12.45	1770
USGS	4/18/2013	19:50	12.45	1770
USGS	4/18/2013	19:55	12.47	1770
USGS	4/18/2013	20:00	12.49	1780
USGS	4/18/2013	20:05	12.53	1790
USGS	4/18/2013	20:10	12.50	1780
USGS	4/18/2013	20:15	12.48	1780
USGS	4/18/2013	20:20	12.45	1770
USGS	4/18/2013	20:25	12.43	1760
USGS	4/18/2013	20:30	12.45	1770
USGS	4/18/2013	20:35	12.45	1770
USGS	4/18/2013	20:40	12.42	1760

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/18/2013	20:45	12.37	1740
USGS	4/18/2013	20:50	12.36	1730
USGS	4/18/2013	20:55	12.40	1750
USGS	4/18/2013	21:00	12.39	1740
USGS	4/18/2013	21:05	12.40	1750
USGS	4/18/2013	21:10	12.39	1740
USGS	4/18/2013	21:15	12.39	1740
USGS	4/18/2013	21:20	12.34	1730
USGS	4/18/2013	21:25	12.43	1760
USGS	4/18/2013	21:30	12.37	1740
USGS	4/18/2013	21:35	12.39	1740
USGS	4/18/2013	21:40	12.44	1760
USGS	4/18/2013	21:45	12.39	1740
USGS	4/18/2013	21:50	12.36	1730
USGS	4/18/2013	21:55	12.38	1740
USGS	4/18/2013	22:00	12.41	1750
USGS	4/18/2013	22:05	12.41	1750
USGS	4/18/2013	22:10	12.41	1750
USGS	4/18/2013	22:15	12.39	1740
USGS	4/18/2013	22:20	12.37	1740
USGS	4/18/2013	22:25	12.38	1740
USGS	4/18/2013	22:30	12.38	1740
USGS	4/18/2013	22:35	12.32	1720
USGS	4/18/2013	22:40	12.30	1710
USGS	4/18/2013	22:45	12.37	1740
USGS	4/18/2013	22:50	12.35	1730
USGS	4/18/2013	22:55	12.41	1750
USGS	4/18/2013	23:00	12.35	1730
USGS	4/18/2013	23:05	12.35	1730
USGS	4/18/2013	23:10	12.38	1740
USGS	4/18/2013	23:15	12.38	1740
USGS	4/18/2013	23:20	12.34	1730
USGS	4/18/2013	23:25	12.38	1740
USGS	4/18/2013	23:30	12.42	1760
USGS	4/18/2013	23:35	12.45	1770
USGS	4/18/2013	23:40	12.39	1740
USGS	4/18/2013	23:45	12.37	1740
USGS	4/18/2013	23:50	12.37	1740
USGS	4/18/2013	23:55	12.37	1740
USGS	4/19/2013	0:00	12.35	1730
USGS	4/19/2013	0:05	12.34	1730
USGS	4/19/2013	0:10	12.37	1740
USGS	4/19/2013	0:15	12.38	1740
USGS	4/19/2013	0:20	12.37	1740

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	0:25	12.34	1730
USGS	4/19/2013	0:30	12.30	1710
USGS	4/19/2013	0:35	12.38	1740
USGS	4/19/2013	0:40	12.34	1730
USGS	4/19/2013	0:45	12.31	1720
USGS	4/19/2013	0:50	12.37	1740
USGS	4/19/2013	0:55	12.29	1710
USGS	4/19/2013	1:00	12.39	1740
USGS	4/19/2013	1:05	12.36	1730
USGS	4/19/2013	1:10	12.37	1740
USGS	4/19/2013	1:15	12.35	1730
USGS	4/19/2013	1:20	12.32	1720
USGS	4/19/2013	1:25	12.36	1730
USGS	4/19/2013	1:30	12.36	1730
USGS	4/19/2013	1:35	12.36	1730
USGS	4/19/2013	1:40	12.43	1760
USGS	4/19/2013	1:45	12.37	1740
USGS	4/19/2013	1:50	12.34	1730
USGS	4/19/2013	1:55	12.39	1740
USGS	4/19/2013	2:00	12.35	1730
USGS	4/19/2013	2:05	12.36	1730
USGS	4/19/2013	2:10	12.32	1720
USGS	4/19/2013	2:15	12.33	1720
USGS	4/19/2013	2:20	12.34	1730
USGS	4/19/2013	2:25	12.34	1730
USGS	4/19/2013	2:30	12.37	1740
USGS	4/19/2013	2:35	12.32	1720
USGS	4/19/2013	2:40	12.37	1740
USGS	4/19/2013	2:45	12.35	1730
USGS	4/19/2013	2:50	12.31	1720
USGS	4/19/2013	2:55	12.34	1730
USGS	4/19/2013	3:00	12.35	1730
USGS	4/19/2013	3:05	12.33	1720
USGS	4/19/2013	3:10	12.31	1720
USGS	4/19/2013	3:15	12.32	1720
USGS	4/19/2013	3:20	12.31	1720
USGS	4/19/2013	3:25	12.30	1710
USGS	4/19/2013	3:30	12.29	1710
USGS	4/19/2013	3:35	12.33	1720
USGS	4/19/2013	3:40	12.33	1720
USGS	4/19/2013	3:45	12.33	1720
USGS	4/19/2013	3:50	12.35	1730
USGS	4/19/2013	3:55	12.37	1740
USGS	4/19/2013	4:00	12.35	1730

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	4:05	12.31	1720
USGS	4/19/2013	4:10	12.31	1720
USGS	4/19/2013	4:15	12.30	1710
USGS	4/19/2013	4:20	12.34	1730
USGS	4/19/2013	4:25	12.31	1720
USGS	4/19/2013	4:30	12.30	1710
USGS	4/19/2013	4:35	12.32	1720
USGS	4/19/2013	4:40	12.35	1730
USGS	4/19/2013	4:45	12.21	1680
USGS	4/19/2013	4:50	12.29	1710
USGS	4/19/2013	4:55	12.30	1710
USGS	4/19/2013	5:00	12.30	1710
USGS	4/19/2013	5:05	12.31	1720
USGS	4/19/2013	5:10	12.32	1720
USGS	4/19/2013	5:15	12.30	1710
USGS	4/19/2013	5:20	12.27	1700
USGS	4/19/2013	5:25	12.27	1700
USGS	4/19/2013	5:30	12.31	1720
USGS	4/19/2013	5:35	12.30	1710
USGS	4/19/2013	5:40	12.30	1710
USGS	4/19/2013	5:45	12.28	1710
USGS	4/19/2013	5:50	12.30	1710
USGS	4/19/2013	5:55	12.31	1720
USGS	4/19/2013	6:00	12.26	1700
USGS	4/19/2013	6:05	12.23	1690
USGS	4/19/2013	6:10	12.30	1710
USGS	4/19/2013	6:15	12.29	1710
USGS	4/19/2013	6:20	12.36	1730
USGS	4/19/2013	6:25	12.38	1740
USGS	4/19/2013	6:30	12.31	1720
USGS	4/19/2013	6:35	12.33	1720
USGS	4/19/2013	6:40	12.21	1680
USGS	4/19/2013	6:45	12.27	1700
USGS	4/19/2013	6:50	12.29	1710
USGS	4/19/2013	6:55	12.27	1700
USGS	4/19/2013	7:00	12.28	1710
USGS	4/19/2013	7:05	12.32	1720
USGS	4/19/2013	7:10	12.29	1710
USGS	4/19/2013	7:15	12.28	1710
USGS	4/19/2013	7:20	12.28	1710
USGS	4/19/2013	7:25	12.25	1700
USGS	4/19/2013	7:30	12.23	1690
USGS	4/19/2013	7:35	12.24	1690
USGS	4/19/2013	7:40	12.25	1700

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	7:45	12.23	1690
USGS	4/19/2013	7:50	12.27	1700
USGS	4/19/2013	7:55	12.26	1700
USGS	4/19/2013	8:00	12.24	1690
USGS	4/19/2013	8:05	12.27	1700
USGS	4/19/2013	8:10	12.25	1700
USGS	4/19/2013	8:15	12.25	1700
USGS	4/19/2013	8:20	12.25	1700
USGS	4/19/2013	8:25	12.25	1700
USGS	4/19/2013	8:30	12.26	1700
USGS	4/19/2013	8:35	12.21	1680
USGS	4/19/2013	8:40	12.25	1700
USGS	4/19/2013	8:45	12.19	1680
USGS	4/19/2013	8:50	12.24	1690
USGS	4/19/2013	8:55	12.22	1690
USGS	4/19/2013	9:00	12.26	1700
USGS	4/19/2013	9:05	12.28	1710
USGS	4/19/2013	9:10	12.29	1710
USGS	4/19/2013	9:15	12.21	1680
USGS	4/19/2013	9:20	12.24	1690
USGS	4/19/2013	9:25	12.25	1700
USGS	4/19/2013	9:30	12.26	1700
USGS	4/19/2013	9:35	12.23	1690
USGS	4/19/2013	9:40	12.23	1690
USGS	4/19/2013	9:45	12.21	1680
USGS	4/19/2013	9:50	12.22	1690
USGS	4/19/2013	9:55	12.22	1690
USGS	4/19/2013	10:00	12.25	1700
USGS	4/19/2013	10:05	12.24	1690
USGS	4/19/2013	10:10	12.20	1680
USGS	4/19/2013	10:15	12.23	1690
USGS	4/19/2013	10:20	12.24	1690
USGS	4/19/2013	10:25	12.21	1680
USGS	4/19/2013	10:30	12.22	1690
USGS	4/19/2013	10:35	12.21	1680
USGS	4/19/2013	10:40	12.18	1670
USGS	4/19/2013	10:45	12.20	1680
USGS	4/19/2013	10:50	12.21	1680
USGS	4/19/2013	10:55	12.19	1680
USGS	4/19/2013	11:00	12.21	1680
USGS	4/19/2013	11:05	12.19	1680
USGS	4/19/2013	11:10	12.21	1680
USGS	4/19/2013	11:15	12.17	1670
USGS	4/19/2013	11:20	12.16	1670

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	11:25	12.16	1670
USGS	4/19/2013	11:30	12.18	1670
USGS	4/19/2013	11:35	12.15	1660
USGS	4/19/2013	11:40	12.20	1680
USGS	4/19/2013	11:45	12.12	1650
USGS	4/19/2013	11:50	12.23	1690
USGS	4/19/2013	11:55	12.30	1710
USGS	4/19/2013	12:00	12.23	1690
USGS	4/19/2013	12:05	12.18	1670
USGS	4/19/2013	12:10	12.16	1670
USGS	4/19/2013	12:15	12.19	1680
USGS	4/19/2013	12:20	12.21	1680
USGS	4/19/2013	12:25	12.16	1670
USGS	4/19/2013	12:30	12.17	1670
USGS	4/19/2013	12:35	12.17	1670
USGS	4/19/2013	12:40	12.14	1660
USGS	4/19/2013	12:45	12.16	1670
USGS	4/19/2013	12:50	12.18	1670
USGS	4/19/2013	12:55	12.16	1670
USGS	4/19/2013	13:00	12.14	1660
USGS	4/19/2013	13:05	12.13	1660
USGS	4/19/2013	13:10	12.05	1630
USGS	4/19/2013	13:15	12.15	1660
USGS	4/19/2013	13:20	12.15	1660
USGS	4/19/2013	13:25	12.15	1660
USGS	4/19/2013	13:30	12.12	1650
USGS	4/19/2013	13:35	12.11	1650
USGS	4/19/2013	13:40	12.15	1660
USGS	4/19/2013	13:45	12.15	1660
USGS	4/19/2013	13:50	12.10	1650
USGS	4/19/2013	13:55	12.08	1640
USGS	4/19/2013	14:00	12.11	1650
USGS	4/19/2013	14:05	12.07	1640
USGS	4/19/2013	14:10	12.09	1640
USGS	4/19/2013	14:15	12.07	1640
USGS	4/19/2013	14:20	12.13	1660
USGS	4/19/2013	14:25	12.10	1650
USGS	4/19/2013	14:30	12.14	1660
USGS	4/19/2013	14:35	12.13	1660
USGS	4/19/2013	14:40	12.11	1650
USGS	4/19/2013	14:45	12.13	1660
USGS	4/19/2013	14:50	12.17	1670
USGS	4/19/2013	14:55	12.13	1660
USGS	4/19/2013	15:00	12.11	1650

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	15:05	12.09	1640
USGS	4/19/2013	15:10	12.11	1650
USGS	4/19/2013	15:15	12.08	1640
USGS	4/19/2013	15:20	12.12	1650
USGS	4/19/2013	15:25	12.12	1650
USGS	4/19/2013	15:30	12.07	1640
USGS	4/19/2013	15:35	12.08	1640
USGS	4/19/2013	15:40	12.09	1640
USGS	4/19/2013	15:45	12.08	1640
USGS	4/19/2013	15:50	12.12	1650
USGS	4/19/2013	15:55	12.09	1640
USGS	4/19/2013	16:00	12.08	1640
USGS	4/19/2013	16:05	12.06	1630
USGS	4/19/2013	16:10	12.09	1640
USGS	4/19/2013	16:15	12.08	1640
USGS	4/19/2013	16:20	12.04	1630
USGS	4/19/2013	16:25	12.02	1620
USGS	4/19/2013	16:30	12.05	1630
USGS	4/19/2013	16:35	12.05	1630
USGS	4/19/2013	16:40	12.05	1630
USGS	4/19/2013	16:45	12.07	1640
USGS	4/19/2013	16:50	12.06	1630
USGS	4/19/2013	16:55	12.10	1650
USGS	4/19/2013	17:00	12.03	1620
USGS	4/19/2013	17:05	12.05	1630
USGS	4/19/2013	17:10	12.08	1640
USGS	4/19/2013	17:15	12.02	1620
USGS	4/19/2013	17:20	12.03	1620
USGS	4/19/2013	17:25	12.04	1630
USGS	4/19/2013	17:30	12.06	1630
USGS	4/19/2013	17:35	12.06	1630
USGS	4/19/2013	17:40	12.05	1630
USGS	4/19/2013	17:45	12.06	1630
USGS	4/19/2013	17:50	12.07	1640
USGS	4/19/2013	17:55	12.06	1630
USGS	4/19/2013	18:00	12.04	1630
USGS	4/19/2013	18:05	12.04	1630
USGS	4/19/2013	18:10	12.10	1650
USGS	4/19/2013	18:15	12.11	1650
USGS	4/19/2013	18:20	12.08	1640
USGS	4/19/2013	18:25	12.09	1640
USGS	4/19/2013	18:30	12.06	1630
USGS	4/19/2013	18:35	12.08	1640
USGS	4/19/2013	18:40	12.05	1630

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	18:45	12.05	1630
USGS	4/19/2013	18:50	12.05	1630
USGS	4/19/2013	18:55	12.03	1620
USGS	4/19/2013	19:00	12.05	1630
USGS	4/19/2013	19:05	11.99	1610
USGS	4/19/2013	19:10	12.05	1630
USGS	4/19/2013	19:15	12.02	1620
USGS	4/19/2013	19:20	12.01	1620
USGS	4/19/2013	19:25	12.05	1630
USGS	4/19/2013	19:30	12.02	1620
USGS	4/19/2013	19:35	12.05	1630
USGS	4/19/2013	19:40	12.01	1620
USGS	4/19/2013	19:45	12.02	1620
USGS	4/19/2013	19:50	11.99	1610
USGS	4/19/2013	19:55	12.01	1620
USGS	4/19/2013	20:00	12.03	1620
USGS	4/19/2013	20:05	12.03	1620
USGS	4/19/2013	20:10	11.96	1600
USGS	4/19/2013	20:15	11.97	1600
USGS	4/19/2013	20:20	11.98	1610
USGS	4/19/2013	20:25	11.98	1610
USGS	4/19/2013	20:30	12.00	1610
USGS	4/19/2013	20:35	11.98	1610
USGS	4/19/2013	20:40	11.96	1600
USGS	4/19/2013	20:45	11.99	1610
USGS	4/19/2013	20:50	11.98	1610
USGS	4/19/2013	20:55	11.97	1600
USGS	4/19/2013	21:00	11.94	1590
USGS	4/19/2013	21:05	11.97	1600
USGS	4/19/2013	21:10	11.99	1610
USGS	4/19/2013	21:15	11.97	1600
USGS	4/19/2013	21:20	11.98	1610
USGS	4/19/2013	21:25	11.98	1610
USGS	4/19/2013	21:30	11.98	1610
USGS	4/19/2013	21:35	11.96	1600
USGS	4/19/2013	21:40	11.97	1600
USGS	4/19/2013	21:45	11.99	1610
USGS	4/19/2013	21:50	11.99	1610
USGS	4/19/2013	21:55	11.97	1600
USGS	4/19/2013	22:00	11.97	1600
USGS	4/19/2013	22:05	11.95	1600
USGS	4/19/2013	22:10	11.97	1600
USGS	4/19/2013	22:15	11.95	1600
USGS	4/19/2013	22:20	11.92	1590

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/19/2013	22:25	11.95	1600
USGS	4/19/2013	22:30	11.95	1600
USGS	4/19/2013	22:35	11.97	1600
USGS	4/19/2013	22:40	11.89	1580
USGS	4/19/2013	22:45	11.92	1590
USGS	4/19/2013	22:50	11.94	1590
USGS	4/19/2013	22:55	11.92	1590
USGS	4/19/2013	23:00	11.96	1600
USGS	4/19/2013	23:05	11.95	1600
USGS	4/19/2013	23:10	11.91	1580
USGS	4/19/2013	23:15	11.91	1580
USGS	4/19/2013	23:20	11.91	1580
USGS	4/19/2013	23:25	11.89	1580
USGS	4/19/2013	23:30	11.94	1590
USGS	4/19/2013	23:35	11.92	1590
USGS	4/19/2013	23:40	11.89	1580
USGS	4/19/2013	23:45	11.85	1560
USGS	4/19/2013	23:50	11.91	1580
USGS	4/19/2013	23:55	11.90	1580
USGS	4/20/2013	0:00	11.90	1580
USGS	4/20/2013	0:05	11.90	1580
USGS	4/20/2013	0:10	11.85	1560
USGS	4/20/2013	0:15	11.87	1570
USGS	4/20/2013	0:20	11.87	1570
USGS	4/20/2013	0:25	11.86	1570
USGS	4/20/2013	0:30	11.90	1580
USGS	4/20/2013	0:35	11.85	1560
USGS	4/20/2013	0:40	11.88	1570
USGS	4/20/2013	0:45	11.84	1560
USGS	4/20/2013	0:50	11.83	1560
USGS	4/20/2013	0:55	11.87	1570
USGS	4/20/2013	1:00	11.87	1570
USGS	4/20/2013	1:05	11.86	1570
USGS	4/20/2013	1:10	11.88	1570
USGS	4/20/2013	1:15	11.85	1560
USGS	4/20/2013	1:20	11.86	1570
USGS	4/20/2013	1:25	11.86	1570
USGS	4/20/2013	1:30	11.85	1560
USGS	4/20/2013	1:35	11.86	1570
USGS	4/20/2013	1:40	11.82	1550
USGS	4/20/2013	1:45	11.81	1550
USGS	4/20/2013	1:50	11.89	1580
USGS	4/20/2013	1:55	11.90	1580
USGS	4/20/2013	2:00	11.81	1550

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/20/2013	2:05	11.84	1560
USGS	4/20/2013	2:10	11.82	1550
USGS	4/20/2013	2:15	11.85	1560
USGS	4/20/2013	2:20	11.79	1540
USGS	4/20/2013	2:25	11.86	1570
USGS	4/20/2013	2:30	11.81	1550
USGS	4/20/2013	2:35	11.82	1550
USGS	4/20/2013	2:40	11.77	1540
USGS	4/20/2013	2:45	11.82	1550
USGS	4/20/2013	2:50	11.83	1560
USGS	4/20/2013	2:55	11.81	1550
USGS	4/20/2013	3:00	11.82	1550
USGS	4/20/2013	3:05	11.75	1530
USGS	4/20/2013	3:10	11.79	1540
USGS	4/20/2013	3:15	11.78	1540
USGS	4/20/2013	3:20	11.77	1540
USGS	4/20/2013	3:25	11.76	1530
USGS	4/20/2013	3:30	11.80	1550
USGS	4/20/2013	3:35	11.78	1540
USGS	4/20/2013	3:40	11.75	1530
USGS	4/20/2013	3:45	11.78	1540
USGS	4/20/2013	3:50	11.76	1530
USGS	4/20/2013	3:55	11.79	1540
USGS	4/20/2013	4:00	11.74	1530
USGS	4/20/2013	4:05	11.75	1530
USGS	4/20/2013	4:10	11.76	1530
USGS	4/20/2013	4:15	11.74	1530
USGS	4/20/2013	4:20	11.72	1520
USGS	4/20/2013	4:25	11.75	1530
USGS	4/20/2013	4:30	11.74	1530
USGS	4/20/2013	4:35	11.74	1530
USGS	4/20/2013	4:40	11.68	1510
USGS	4/20/2013	4:45	11.74	1530
USGS	4/20/2013	4:50	11.76	1530
USGS	4/20/2013	4:55	11.73	1520
USGS	4/20/2013	5:00	11.70	1510
USGS	4/20/2013	5:05	11.72	1520
USGS	4/20/2013	5:10	11.73	1520
USGS	4/20/2013	5:15	11.73	1520
USGS	4/20/2013	5:20	11.71	1520
USGS	4/20/2013	5:25	11.69	1510
USGS	4/20/2013	5:30	11.66	1500
USGS	4/20/2013	5:35	11.69	1510
USGS	4/20/2013	5:40	11.71	1520

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/20/2013	5:45	11.72	1520
USGS	4/20/2013	5:50	11.70	1510
USGS	4/20/2013	5:55	11.66	1500
USGS	4/20/2013	6:00	11.68	1510
USGS	4/20/2013	6:05	11.66	1500
USGS	4/20/2013	6:10	11.68	1510
USGS	4/20/2013	6:15	11.71	1520
USGS	4/20/2013	6:20	11.73	1520
USGS	4/20/2013	6:25	11.69	1510
USGS	4/20/2013	6:30	11.64	1490
USGS	4/20/2013	6:35	11.65	1500
USGS	4/20/2013	6:40	11.68	1510
USGS	4/20/2013	6:45	11.68	1510
USGS	4/20/2013	6:50	11.67	1500
USGS	4/20/2013	6:55	11.61	1480
USGS	4/20/2013	7:00	11.66	1500
USGS	4/20/2013	7:05	11.65	1500
USGS	4/20/2013	7:10	11.64	1490
USGS	4/20/2013	7:15	11.63	1490
USGS	4/20/2013	7:20	11.61	1480
USGS	4/20/2013	7:25	11.63	1490
USGS	4/20/2013	7:30	11.62	1490
USGS	4/20/2013	7:35	11.59	1480
USGS	4/20/2013	7:40	11.57	1470
USGS	4/20/2013	7:45	11.63	1490
USGS	4/20/2013	7:50	11.60	1480
USGS	4/20/2013	7:55	11.55	1470
USGS	4/20/2013	8:00	11.59	1480
USGS	4/20/2013	8:05	11.61	1480
USGS	4/20/2013	8:10	11.57	1470
USGS	4/20/2013	8:15	11.53	1460
USGS	4/20/2013	8:20	11.57	1470
USGS	4/20/2013	8:25	11.59	1480
USGS	4/20/2013	8:30	11.57	1470
USGS	4/20/2013	8:35	11.55	1470
USGS	4/20/2013	8:40	11.57	1470
USGS	4/20/2013	8:45	11.53	1460
USGS	4/20/2013	8:50	11.56	1470
USGS	4/20/2013	8:55	11.57	1470
USGS	4/20/2013	9:00	11.55	1470
USGS	4/20/2013	9:05	11.52	1460
USGS	4/20/2013	9:10	11.55	1470
USGS	4/20/2013	9:15	11.50	1450
USGS	4/20/2013	9:20	11.50	1450

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/20/2013	9:25	11.51	1450
USGS	4/20/2013	9:30	11.48	1440
USGS	4/20/2013	9:35	11.51	1450
USGS	4/20/2013	9:40	11.49	1450
USGS	4/20/2013	9:45	11.48	1440
USGS	4/20/2013	9:50	11.47	1440
USGS	4/20/2013	9:55	11.47	1440
USGS	4/20/2013	10:00	11.44	1430
USGS	4/20/2013	10:05	11.42	1420
USGS	4/20/2013	10:10	11.45	1430
USGS	4/20/2013	10:15	11.43	1430
USGS	4/20/2013	10:20	11.44	1430
USGS	4/20/2013	10:25	11.41	1420
USGS	4/20/2013	10:30	11.44	1430
USGS	4/20/2013	10:35	11.41	1420
USGS	4/20/2013	10:40	11.37	1410
USGS	4/20/2013	10:45	11.39	1410
USGS	4/20/2013	10:50	11.40	1420
USGS	4/20/2013	10:55	11.41	1420
USGS	4/20/2013	11:00	11.43	1430
USGS	4/20/2013	11:05	11.40	1420
USGS	4/20/2013	11:10	11.41	1420
USGS	4/20/2013	11:15	11.40	1420
USGS	4/20/2013	11:20	11.36	1400
USGS	4/20/2013	11:25	11.36	1400
USGS	4/20/2013	11:30	11.31	1390
USGS	4/20/2013	11:35	11.35	1400
USGS	4/20/2013	11:40	11.35	1400
USGS	4/20/2013	11:45	11.31	1390
USGS	4/20/2013	11:50	11.32	1390
USGS	4/20/2013	11:55	11.25	1370
USGS	4/20/2013	12:00	11.26	1370
USGS	4/20/2013	12:05	11.31	1390
USGS	4/20/2013	12:10	11.27	1380
USGS	4/20/2013	12:15	11.26	1370
USGS	4/20/2013	12:20	11.27	1380
USGS	4/20/2013	12:25	11.26	1370
USGS	4/20/2013	12:30	11.26	1370
USGS	4/20/2013	12:35	11.26	1370
USGS	4/20/2013	12:40	11.22	1360
USGS	4/20/2013	12:45	11.23	1360
USGS	4/20/2013	12:50	11.22	1360
USGS	4/20/2013	12:55	11.18	1350
USGS	4/20/2013	13:00	11.18	1350

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/20/2013	13:05	11.16	1340
USGS	4/20/2013	13:10	11.15	1340
USGS	4/20/2013	13:15	11.14	1340
USGS	4/20/2013	13:20	11.10	1320
USGS	4/20/2013	13:25	11.15	1340
USGS	4/20/2013	13:30	11.13	1330
USGS	4/20/2013	13:35	11.12	1330
USGS	4/20/2013	13:40	11.14	1340
USGS	4/20/2013	13:45	11.10	1320
USGS	4/20/2013	13:50	11.08	1320
USGS	4/20/2013	13:55	11.12	1330
USGS	4/20/2013	14:00	11.08	1320
USGS	4/20/2013	14:05	11.08	1320
USGS	4/20/2013	14:10	11.04	1300
USGS	4/20/2013	14:15	11.06	1310
USGS	4/20/2013	14:20	11.05	1310
USGS	4/20/2013	14:25	11.05	1310
USGS	4/20/2013	14:30	11.03	1300
USGS	4/20/2013	14:35	11.00	1290
USGS	4/20/2013	14:40	11.00	1290
USGS	4/20/2013	14:45	11.00	1290
USGS	4/20/2013	14:50	11.02	1300
USGS	4/20/2013	14:55	11.01	1290
USGS	4/20/2013	15:00	11.01	1290
USGS	4/20/2013	15:05	11.04	1300
USGS	4/20/2013	15:10	11.03	1300
USGS	4/20/2013	15:15	11.03	1300
USGS	4/20/2013	15:20	11.03	1300
USGS	4/20/2013	15:25	11.05	1310
USGS	4/20/2013	15:30	11.03	1300
USGS	4/20/2013	15:35	10.98	1290
USGS	4/20/2013	15:40	11.00	1290
USGS	4/20/2013	15:45	11.00	1290
USGS	4/20/2013	15:50	11.02	1300
USGS	4/20/2013	15:55	11.03	1300
USGS	4/20/2013	16:00	11.02	1300
USGS	4/20/2013	16:05	11.01	1290
USGS	4/20/2013	16:10	10.99	1290
USGS	4/20/2013	16:15	10.98	1290
USGS	4/20/2013	16:20	10.99	1290
USGS	4/20/2013	16:25	10.99	1290
USGS	4/20/2013	16:30	10.95	1280
USGS	4/20/2013	16:35	10.98	1290
USGS	4/20/2013	16:40	10.96	1280

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/20/2013	16:45	10.96	1280
USGS	4/20/2013	16:50	10.96	1280
USGS	4/20/2013	16:55	10.94	1270
USGS	4/20/2013	17:00	10.98	1290
USGS	4/20/2013	17:05	10.96	1280
USGS	4/20/2013	17:10	10.97	1280
USGS	4/20/2013	17:15	10.94	1270
USGS	4/20/2013	17:20	10.93	1270
USGS	4/20/2013	17:25	10.93	1270
USGS	4/20/2013	17:30	10.90	1260
USGS	4/20/2013	17:35	10.91	1260
USGS	4/20/2013	17:40	10.90	1260
USGS	4/20/2013	17:45	10.88	1260
USGS	4/20/2013	17:50	10.93	1270
USGS	4/20/2013	17:55	10.90	1260
USGS	4/20/2013	18:00	10.95	1280
USGS	4/20/2013	18:05	10.99	1290
USGS	4/20/2013	18:10	10.98	1290
USGS	4/20/2013	18:15	11.00	1290
USGS	4/20/2013	18:20	11.03	1300
USGS	4/20/2013	18:25	11.06	1310
USGS	4/20/2013	18:30	11.08	1320
USGS	4/20/2013	18:35	11.07	1310
USGS	4/20/2013	18:40	11.10	1320
USGS	4/20/2013	18:45	11.08	1320
USGS	4/20/2013	18:50	11.08	1320
USGS	4/20/2013	18:55	11.13	1330
USGS	4/20/2013	19:00	11.10	1320
USGS	4/20/2013	19:05	11.14	1340
USGS	4/20/2013	19:10	11.16	1340
USGS	4/20/2013	19:15	11.17	1340
USGS	4/20/2013	19:20	11.13	1330
USGS	4/20/2013	19:25	11.16	1340
USGS	4/20/2013	19:30	11.16	1340
USGS	4/20/2013	19:35	11.16	1340
USGS	4/20/2013	19:40	11.17	1340
USGS	4/20/2013	19:45	11.16	1340
USGS	4/20/2013	19:50	11.17	1340
USGS	4/20/2013	19:55	11.14	1340
USGS	4/20/2013	20:00	11.16	1340
USGS	4/20/2013	20:05	11.19	1350
USGS	4/20/2013	20:10	11.17	1340
USGS	4/20/2013	20:15	11.15	1340
USGS	4/20/2013	20:20	11.16	1340

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/20/2013	20:25	11.15	1340
USGS	4/20/2013	20:30	11.15	1340
USGS	4/20/2013	20:35	11.15	1340
USGS	4/20/2013	20:40	11.15	1340
USGS	4/20/2013	20:45	11.15	1340
USGS	4/20/2013	20:50	11.13	1330
USGS	4/20/2013	20:55	11.10	1320
USGS	4/20/2013	21:00	11.11	1330
USGS	4/20/2013	21:05	11.14	1340
USGS	4/20/2013	21:10	11.12	1330
USGS	4/20/2013	21:15	11.11	1330
USGS	4/20/2013	21:20	11.12	1330
USGS	4/20/2013	21:25	11.12	1330
USGS	4/20/2013	21:30	11.09	1320
USGS	4/20/2013	21:35	11.11	1330
USGS	4/20/2013	21:40	11.10	1320
USGS	4/20/2013	21:45	11.08	1320
USGS	4/20/2013	21:50	11.08	1320
USGS	4/20/2013	21:55	11.06	1310
USGS	4/20/2013	22:00	11.07	1310
USGS	4/20/2013	22:05	11.08	1320
USGS	4/20/2013	22:10	11.06	1310
USGS	4/20/2013	22:15	11.05	1310
USGS	4/20/2013	22:20	11.06	1310
USGS	4/20/2013	22:25	11.02	1300
USGS	4/20/2013	22:30	11.05	1310
USGS	4/20/2013	22:35	11.02	1300
USGS	4/20/2013	22:40	10.99	1290
USGS	4/20/2013	22:45	11.01	1290
USGS	4/20/2013	22:50	11.03	1300
USGS	4/20/2013	22:55	11.02	1300
USGS	4/20/2013	23:00	10.99	1290
USGS	4/20/2013	23:05	10.99	1290
USGS	4/20/2013	23:10	11.02	1300
USGS	4/20/2013	23:15	11.01	1290
USGS	4/20/2013	23:20	10.97	1280
USGS	4/20/2013	23:25	10.96	1280
USGS	4/20/2013	23:30	10.93	1270
USGS	4/20/2013	23:35	10.97	1280
USGS	4/20/2013	23:40	10.97	1280
USGS	4/20/2013	23:45	10.95	1280
USGS	4/20/2013	23:50	10.94	1270
USGS	4/20/2013	23:55	10.92	1270
USGS	4/21/2013	0:00	10.92	1270

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/21/2013	0:05	10.91	1260
USGS	4/21/2013	0:10	10.90	1260
USGS	4/21/2013	0:15	10.89	1260
USGS	4/21/2013	0:20	10.89	1260
USGS	4/21/2013	0:25	10.89	1260
USGS	4/21/2013	0:30	10.85	1250
USGS	4/21/2013	0:35	10.84	1240
USGS	4/21/2013	0:40	10.84	1240
USGS	4/21/2013	0:45	10.85	1250
USGS	4/21/2013	0:50	10.82	1240
USGS	4/21/2013	0:55	10.80	1230
USGS	4/21/2013	1:00	10.82	1240
USGS	4/21/2013	1:05	10.80	1230
USGS	4/21/2013	1:10	10.79	1230
USGS	4/21/2013	1:15	10.78	1220
USGS	4/21/2013	1:20	10.78	1220
USGS	4/21/2013	1:25	10.76	1220
USGS	4/21/2013	1:30	10.77	1220
USGS	4/21/2013	1:35	10.74	1210
USGS	4/21/2013	1:40	10.74	1210
USGS	4/21/2013	1:45	10.73	1210
USGS	4/21/2013	1:50	10.74	1210
USGS	4/21/2013	1:55	10.68	1190
USGS	4/21/2013	2:00	10.71	1200
USGS	4/21/2013	2:05	10.67	1190
USGS	4/21/2013	2:10	10.69	1200
USGS	4/21/2013	2:15	10.69	1200
USGS	4/21/2013	2:20	10.66	1190
USGS	4/21/2013	2:25	10.67	1190
USGS	4/21/2013	2:30	10.65	1190
USGS	4/21/2013	2:35	10.64	1180
USGS	4/21/2013	2:40	10.66	1190
USGS	4/21/2013	2:45	10.62	1180
USGS	4/21/2013	2:50	10.66	1190
USGS	4/21/2013	2:55	10.59	1170
USGS	4/21/2013	3:00	10.60	1170
USGS	4/21/2013	3:05	10.59	1170
USGS	4/21/2013	3:10	10.58	1160
USGS	4/21/2013	3:15	10.59	1170
USGS	4/21/2013	3:20	10.56	1160
USGS	4/21/2013	3:25	10.56	1160
USGS	4/21/2013	3:30	10.55	1160
USGS	4/21/2013	3:35	10.56	1160
USGS	4/21/2013	3:40	10.53	1150

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/21/2013	3:45	10.54	1150
USGS	4/21/2013	3:50	10.51	1140
USGS	4/21/2013	3:55	10.52	1150
USGS	4/21/2013	4:00	10.51	1140
USGS	4/21/2013	4:05	10.49	1140
USGS	4/21/2013	4:10	10.49	1140
USGS	4/21/2013	4:15	10.48	1140
USGS	4/21/2013	4:20	10.46	1130
USGS	4/21/2013	4:25	10.44	1120
USGS	4/21/2013	4:30	10.44	1120
USGS	4/21/2013	4:35	10.45	1130
USGS	4/21/2013	4:40	10.43	1120
USGS	4/21/2013	4:45	10.43	1120
USGS	4/21/2013	4:50	10.40	1110
USGS	4/21/2013	4:55	10.39	1110
USGS	4/21/2013	5:00	10.39	1110
USGS	4/21/2013	5:05	10.39	1110
USGS	4/21/2013	5:10	10.39	1110
USGS	4/21/2013	5:15	10.34	1090
USGS	4/21/2013	5:20	10.35	1100
USGS	4/21/2013	5:25	10.34	1090
USGS	4/21/2013	5:30	10.30	1080
USGS	4/21/2013	5:35	10.33	1090
USGS	4/21/2013	5:40	10.33	1090
USGS	4/21/2013	5:45	10.31	1090
USGS	4/21/2013	5:50	10.33	1090
USGS	4/21/2013	5:55	10.32	1090
USGS	4/21/2013	6:00	10.29	1080
USGS	4/21/2013	6:05	10.28	1080
USGS	4/21/2013	6:10	10.25	1070
USGS	4/21/2013	6:15	10.26	1070
USGS	4/21/2013	6:20	10.27	1070
USGS	4/21/2013	6:25	10.25	1070
USGS	4/21/2013	6:30	10.27	1070
USGS	4/21/2013	6:35	10.24	1070
USGS	4/21/2013	6:40	10.24	1070
USGS	4/21/2013	6:45	10.21	1060
USGS	4/21/2013	6:50	10.24	1070
USGS	4/21/2013	6:55	10.23	1060
USGS	4/21/2013	7:00	10.27	1070
USGS	4/21/2013	7:05	10.26	1070
USGS	4/21/2013	7:10	10.23	1060
USGS	4/21/2013	7:15	10.20	1050
USGS	4/21/2013	7:20	10.17	1050

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/21/2013	7:25	10.18	1050
USGS	4/21/2013	7:30	10.16	1040
USGS	4/21/2013	7:35	10.15	1040
USGS	4/21/2013	7:40	10.12	1030
USGS	4/21/2013	7:45	10.14	1040
USGS	4/21/2013	7:50	10.13	1030
USGS	4/21/2013	7:55	10.13	1030
USGS	4/21/2013	8:00	10.11	1030
USGS	4/21/2013	8:05	10.10	1030
USGS	4/21/2013	8:10	10.09	1020
USGS	4/21/2013	8:15	10.08	1020
USGS	4/21/2013	8:20	10.10	1030
USGS	4/21/2013	8:25	10.06	1010
USGS	4/21/2013	8:30	10.05	1010
USGS	4/21/2013	8:35	10.08	1020
USGS	4/21/2013	8:40	10.03	1010
USGS	4/21/2013	8:45	10.02	1000
USGS	4/21/2013	8:50	10.03	1010
USGS	4/21/2013	8:55	10.03	1010
USGS	4/21/2013	9:00	10.03	1010
USGS	4/21/2013	9:05	10.02	1000
USGS	4/21/2013	9:10	10.03	1010
USGS	4/21/2013	9:15	9.99	994
USGS	4/21/2013	9:20	10.00	997
USGS	4/21/2013	9:25	9.99	994
USGS	4/21/2013	9:30	9.97	989
USGS	4/21/2013	9:35	9.97	989
USGS	4/21/2013	9:40	9.97	989
USGS	4/21/2013	9:45	9.97	989
USGS	4/21/2013	9:50	9.95	983
USGS	4/21/2013	9:55	9.95	983
USGS	4/21/2013	10:00	9.94	980
USGS	4/21/2013	10:05	9.91	972
USGS	4/21/2013	10:10	9.92	975
USGS	4/21/2013	10:15	9.94	980
USGS	4/21/2013	10:20	9.90	969
USGS	4/21/2013	10:25	9.91	972
USGS	4/21/2013	10:30	9.90	969
USGS	4/21/2013	10:35	9.90	969
USGS	4/21/2013	10:40	9.89	966
USGS	4/21/2013	10:45	9.87	961
USGS	4/21/2013	10:50	9.88	963
USGS	4/21/2013	10:55	9.87	961
USGS	4/21/2013	11:00	9.87	961

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/21/2013	11:05	9.84	952
USGS	4/21/2013	11:10	9.85	955
USGS	4/21/2013	11:15	9.84	952
USGS	4/21/2013	11:20	9.81	944
USGS	4/21/2013	11:25	9.82	947
USGS	4/21/2013	11:30	9.81	944
USGS	4/21/2013	11:35	9.81	944
USGS	4/21/2013	11:40	9.81	944
USGS	4/21/2013	11:45	9.80	941
USGS	4/21/2013	11:50	9.80	941
USGS	4/21/2013	11:55	9.78	936
USGS	4/21/2013	12:00	9.75	928
USGS	4/21/2013	12:05	9.78	936
USGS	4/21/2013	12:10	9.76	930
USGS	4/21/2013	12:15	9.76	930
USGS	4/21/2013	12:20	9.75	928
USGS	4/21/2013	12:25	9.73	922
USGS	4/21/2013	12:30	9.73	922
USGS	4/21/2013	12:35	9.71	917
USGS	4/21/2013	12:40	9.73	922
USGS	4/21/2013	12:45	9.71	917
USGS	4/21/2013	12:50	9.70	914
USGS	4/21/2013	12:55	9.71	917
USGS	4/21/2013	13:00	9.68	908
USGS	4/21/2013	13:05	9.65	900
USGS	4/21/2013	13:10	9.65	900
USGS	4/21/2013	13:15	9.68	908
USGS	4/21/2013	13:20	9.65	900
USGS	4/21/2013	13:25	9.65	900
USGS	4/21/2013	13:30	9.62	892
USGS	4/21/2013	13:35	9.62	892
USGS	4/21/2013	13:40	9.60	887
USGS	4/21/2013	13:45	9.63	895
USGS	4/21/2013	13:50	9.62	892
USGS	4/21/2013	13:55	9.61	890
USGS	4/21/2013	14:00	9.60	887
USGS	4/21/2013	14:05	9.59	884
USGS	4/21/2013	14:10	9.58	881
USGS	4/21/2013	14:15	9.58	881
USGS	4/21/2013	14:20	9.57	879
USGS	4/21/2013	14:25	9.57	879
USGS	4/21/2013	14:30	9.56	876
USGS	4/21/2013	14:35	9.56	876
USGS	4/21/2013	14:40	9.53	868

April 2013 Elmhurst Gage Data

	Date	Time	Gage Height (feet)	Discharge (cfs)
USGS	4/21/2013	14:45	9.55	873
USGS	4/21/2013	14:50	9.52	865
USGS	4/21/2013	14:55	9.54	871
USGS	4/21/2013	15:00	9.53	868
USGS	4/21/2013	15:05	9.52	865
USGS	4/21/2013	15:10	9.49	858
USGS	4/21/2013	15:15	9.52	865
USGS	4/21/2013	15:20	9.52	865
USGS	4/21/2013	15:25	9.48	855
USGS	4/21/2013	15:30	9.48	855
USGS	4/21/2013	15:35	9.46	850
USGS	4/21/2013	15:40	9.49	858
USGS	4/21/2013	15:45	9.48	855
USGS	4/21/2013	15:50	9.47	853
USGS	4/21/2013	15:55	9.46	850
USGS	4/21/2013	16:00	9.45	848
USGS	4/21/2013	16:05	9.45	848
USGS	4/21/2013	16:10	9.43	843
USGS	4/21/2013	16:15	9.43	843
USGS	4/21/2013	16:20	9.42	841
USGS	4/21/2013	16:25	9.42	841
USGS	4/21/2013	16:30	9.41	838
USGS	4/21/2013	16:35	9.39	834
USGS	4/21/2013	16:40	9.40	836
USGS	4/21/2013	16:45	9.42	841
USGS	4/21/2013	16:50	9.40	836
USGS	4/21/2013	16:55	9.39	834
USGS	4/21/2013	17:00	9.38	831
USGS	4/21/2013	17:05	9.37	829
USGS	4/21/2013	17:10	9.36	827
USGS	4/21/2013	17:15	9.37	829
USGS	4/21/2013	17:20	9.37	829
USGS	4/21/2013	17:25	9.36	827
USGS	4/21/2013	17:30	9.36	827
USGS	4/21/2013	17:35	9.35	824
USGS	4/21/2013	17:40	9.32	817
USGS	4/21/2013	17:45	9.33	819
USGS	4/21/2013	17:50	9.35	824
USGS	4/21/2013	17:55	9.32	817
USGS	4/21/2013	18:00	9.33	819
USGS	4/21/2013	18:05	9.30	812
USGS	4/21/2013	18:10	9.29	810
USGS	4/21/2013	18:15	9.32	817
USGS	4/21/2013	18:20	9.28	808

D. Sour Calculations

SCOUR CALULATIONS

St. Charles Road Bridge Scour Depth Summary

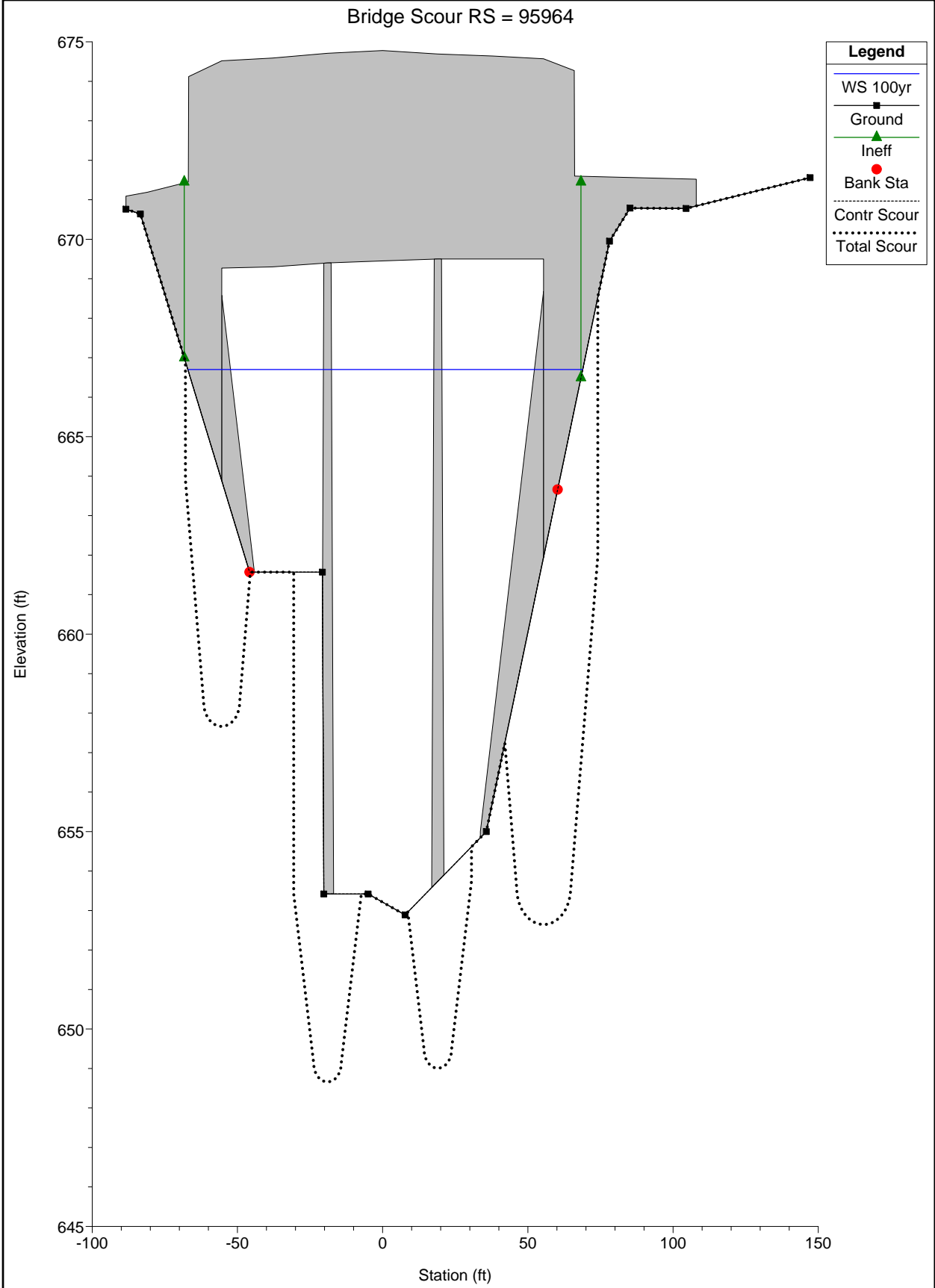
Design Scour Depths (ft)				
	West Abutment	West Pier	East Pier	East Abutment
Q100	9.32	4.74	4.76	6.23
Q200	9.54	4.79	4.81	6.46

Design Scour Elevations (ft)				
	West Abutment	West Pier	East Pier	East Abutment
Q100	652.65	649.02	648.66	657.66
Q200	652.43	648.97	648.61	657.43

Notes:

1. Scour depths calculated via HEC-RAS
2. The following particle sizes were used: D50 = 1.1 mm, D95 = 17 mm which were extracted from soil boring B-2.

100-YR SCOUR SECTION



100-YR HEC-RAS SCOUR REPORT

Contraction Scour

	Left	Channel	Right
Input Data			
Average Depth (ft):	3.64	10.29	3.09
Approach Velocity (ft/s):	1.14	3.77	1.59
Br Average Depth (ft):	2.07	9.30	
BR Opening Flow (cfs):	10.81	1983.20	
BR Top WD (ft):	6.61	92.47	
Grain Size D50 (mm):	1.10	1.10	1.10
Approach Flow (cfs):	116.37	1733.61	50.02
Approach Top WD (ft):	28.05	44.68	10.20
K1 Coefficient:	0.640	0.640	0.640
Results			
Scour Depth Ys (ft):	0.00	0.00	
Critical Velocity (ft/s):	2.13	2.53	
Equation:	Clear	Live	

Pier Scour

Pier: #1 (CL = -19)

Input Data

Pier Shape:	Square nose
Pier Width (ft):	4.26
Grain Size D50 (mm):	1.10000
Depth Upstream (ft):	9.90
Velocity Upstream (ft/s):	1.86
K1 Nose Shape:	1.00
Pier Angle:	
Pier Length (ft):	68.00
K2 Angle Coef:	1.00
K3 Bed Cond Coef:	1.10
Grain Size D90 (mm):	17.00000
K4 Armouring Coef:	1.00

Set K1 value to 1.0 because angle > 5 degrees

Results

Scour Depth Ys (ft):	4.76
Froude #:	0.10
Equation:	CSU equation

Pier: #2 (CL = 19)

Input Data

Pier Shape:	Round nose
Pier Width (ft):	4.22
Grain Size D50 (mm):	1.10000
Depth Upstream (ft):	9.90
Velocity Upstream (ft/s):	1.86
K1 Nose Shape:	1.00
Pier Angle:	
Pier Length (ft):	68.00
K2 Angle Coef:	1.00
K3 Bed Cond Coef:	1.10
Grain Size D90 (mm):	17.00000
K4 Armouring Coef:	1.00

Set K1 value to 1.0 because angle > 5 degrees

Results

Scour Depth Ys (ft):	4.74
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Froude #: 0.10
Equation: CSU equation

Abutment Scour

Left Right

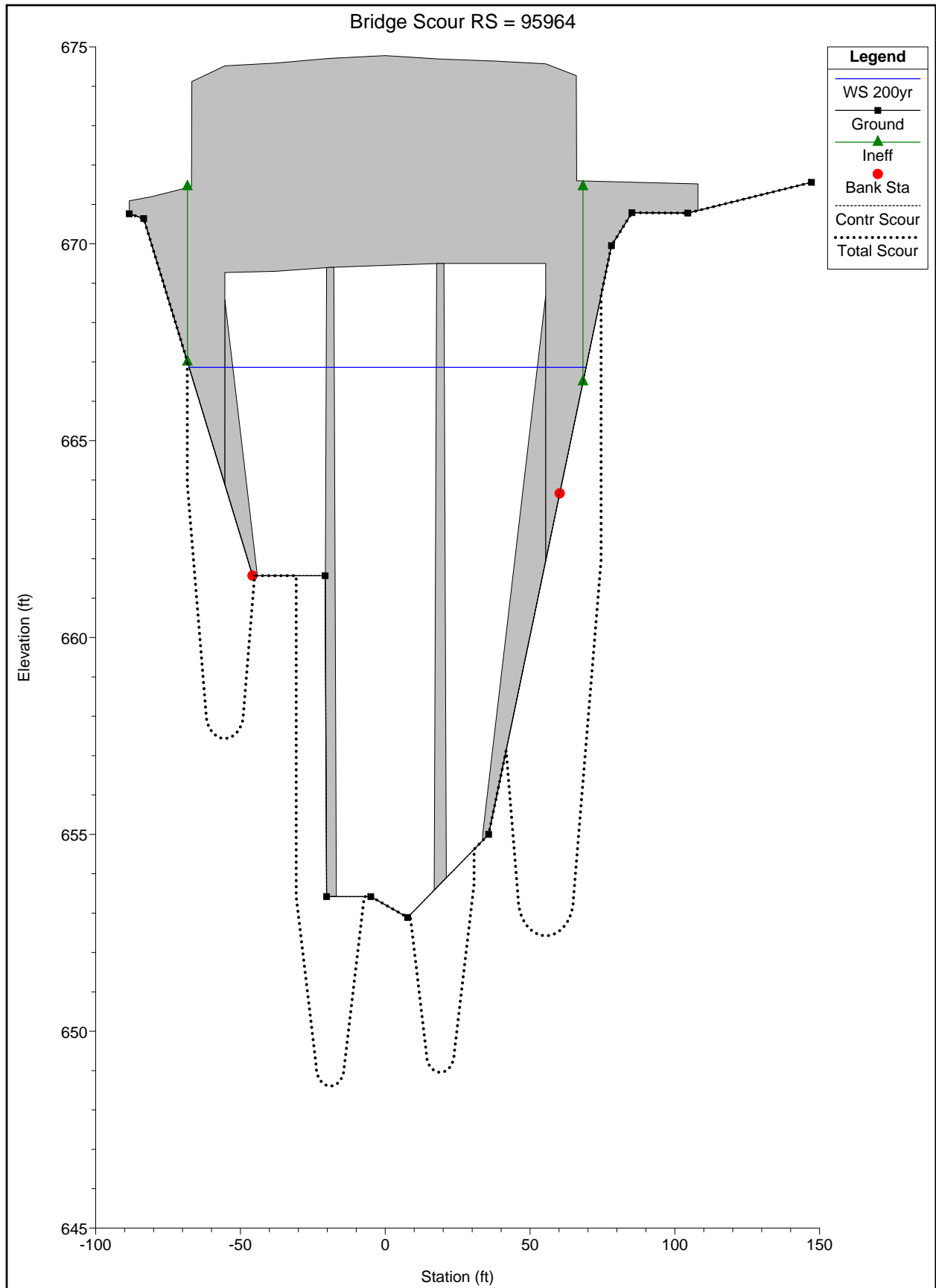
Input Data

Station at Toe (ft):	-55.44	55.45
Toe Sta at appr (ft):	-28.79	20.72
Abutment Length (ft):	28.05	15.02
Depth at Toe (ft):	2.84	4.77
K1 Shape Coef:	0.55 - Spill-through abutment	
Degree of Skew (degrees):	85.00	70.00
K2 Skew Coef:	0.99	0.97
Projected Length L' (ft):	24.64	13.94
Avg Depth Obstructed Ya (ft):	3.64	5.40
Flow Obstructed Qe (cfs):	116.37	236.73
Area Obstructed Ae (sq ft):	102.14	81.06

Results

Scour Depth Ys (ft):	6.23	9.32
Qe/Ae = Ve:	1.14	2.92
Froude #:	0.11	0.22
Equation:	Froehlich	Froehlich

200-YR SCOUR SECTION



200-YR HEC-RAS SCOUR REPORT

Contraction Scour

	Left	Channel	Right
Input Data			
Average Depth (ft):	3.73	10.45	3.17
Approach Velocity (ft/s):	1.17	3.85	1.63
Br Average Depth (ft):	2.15	9.43	
BR Opening Flow (cfs):	12.14	2058.86	
BR Top WD (ft):	6.87	92.76	
Grain Size D50 (mm):	1.10	1.10	1.10
Approach Flow (cfs):	124.80	1798.11	54.09
Approach Top WD (ft):	28.56	44.68	10.46
K1 Coefficient:	0.640	0.640	0.640
Results			
Scour Depth Ys (ft):	0.00	0.00	
Critical Velocity (ft/s):	2.14	2.54	
Equation:	Clear	Live	

Pier Scour

Pier: #1 (CL = -19)

Input Data

Pier Shape:	Round nose
Pier Width (ft):	4.26
Grain Size D50 (mm):	1.10000
Depth Upstream (ft):	10.06
Velocity Upstream (ft/s):	1.90
K1 Nose Shape:	1.00
Pier Angle:	
Pier Length (ft):	68.00
K2 Angle Coef:	1.00
K3 Bed Cond Coef:	1.10
Grain Size D90 (mm):	17.00000
K4 Armouring Coef:	1.00

Set K1 value to 1.0 because angle > 5 degrees

Results

Scour Depth Ys (ft):	4.81
Froude #:	0.11
Equation:	CSU equation

Pier: #2 (CL = 19)

Input Data

Pier Shape:	Round nose
Pier Width (ft):	4.22
Grain Size D50 (mm):	1.10000
Depth Upstream (ft):	10.06
Velocity Upstream (ft/s):	1.90
K1 Nose Shape:	1.00
Pier Angle:	
Pier Length (ft):	68.00
K2 Angle Coef:	1.00
K3 Bed Cond Coef:	1.10
Grain Size D90 (mm):	17.00000
K4 Armouring Coef:	1.00

Set K1 value to 1.0 because angle > 5 degrees

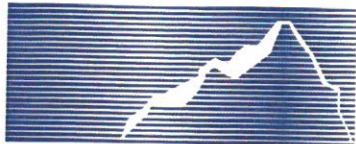
Results

Scour Depth Ys (ft):	4.79
----------------------	------

Froude #: 0.11
Equation: CSU equation

Abutment Scour

	Left	Right
Input Data		
Station at Toe (ft):	-55.44	55.45
Toe Sta at appr (ft):	-28.79	20.72
Abutment Length (ft):	28.56	15.27
Depth at Toe (ft):	3.01	4.94
K1 Shape Coef:	0.55 - Spill-through abutment	
Degree of Skew (degrees):	85.00	70.00
K2 Skew Coef:	0.99	0.97
Projected Length L' (ft):	26.35	14.85
Avg Depth Obstructed Ya (ft):	3.73	5.46
Flow Obstructed Qe (cfs):	124.80	247.75
Area Obstructed Ae (sq ft):	106.58	83.44
Results		
Scour Depth Ys (ft):	6.46	9.54
Qe/Ae = Ve:	1.17	2.97
Froude #:	0.11	0.22
Equation:	Froehlich	Froehlich



EVEREST ENGINEERING COMPANY
915 WEST LIBERTY DRIVE, WHEATON, IL 60187

SOIL BORING LOG

Date 12/3/15

PROJECT BRM-4003 (508) DESCRIPTION St. Charles Road Bridge over Salt Creek LOGGED BY K. Krug

ROUTE FAU 1397 (St. Charles Road) SECTION 5-00094-00-BR LOCATION SE 1/4 SEC. 3 TWP. 39N RNG. 11E PM. 3rd

COUNTY DuPage DRILLING METHOD Mud Rotary below Creek Bed HAMMER TYPE Automatic

STRUCT. NO. 0226950

Station _____

BORING NO. B-2

Station _____

Offset _____

Northing 1,902,768.96

Easting 1,084,803.60

Ground Surface Elev. 671.9 ft

DEPTH H	BLOWS S	UCS Qu	MOIST T	Surface Water Elev. _____ ft	DEPT H	BLOWS S	UCS Qu	MOIST T
(ft)	(/6")	(tsf)	(%)	Stream Bed Elev. _____ ft	(ft)	(/6")	(tsf)	(%)
				Groundwater Elev.: _____				
				First Encounter <u>Mud Rotary</u> _____ ft				
				Upon Completion <u>Mud Rotary</u> _____ ft				
				After _____ Hrs. _____ ft				
CONCRETE PAVEMENT				trace to little - organics	2			
670.8				Grain Size	2			
Casing: Bridge deck/sidewalk to creekbed				LL=31, PI=7, A-2-4(0)	2			
				Loose to Medium Dense, Gray SILTY LOAM	3		22	
				trace - gravel	4			
				Grain Size				
				LL=22, PI=3, A-4(0)				
				<i>D₅₀ = 0.03</i>	2			
				<i>D₉₅ = 2</i>	4		14	
					6			
					-25			
				Dense, Gray Medium SAND				
					11			
					15		20	
					15			
					643.9			
				Medium Dense to Extremely Dense, Gray SANDY LOAM some - gravel	20			
					15		10	
					-30			
					12			
					25			
					639.9	50/5"	11	
				Dense, Gray Medium SAND				
					14			
					18		23	
					-35			
					20			
				Loose, Gray SAND and Gravel				
				Grain Size	2			
				LL=28, PI=7, A-2-4(0)	2		17	
					655.4			
				Very Stiff, Gray LOAM	3			
				trace - shells	2			
				little - gravel	2			
				Grain Size	3	2.00 _p	17	
				LL=38, PI=17, A-6(7)	4			
					652.9			
				Very Loose to Loose, Gray SANDY LOAM	4			
					1			
					651.9	-20	25	
					-40			
					14			
					24		8	
					11			
					633.4			
				Medium Dense, Gray LOAM				
				trace - gravel				

D₅₀ = 1.1
D₉₅ = 17

1.5'
D₅₀ = 0.035
D₉₅ = 9 2.5

D₅₀ = 0.3
D₉₅ = 8

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge and S-Shear on Rimac/Shelby Tube (ST), P-Penetrator)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

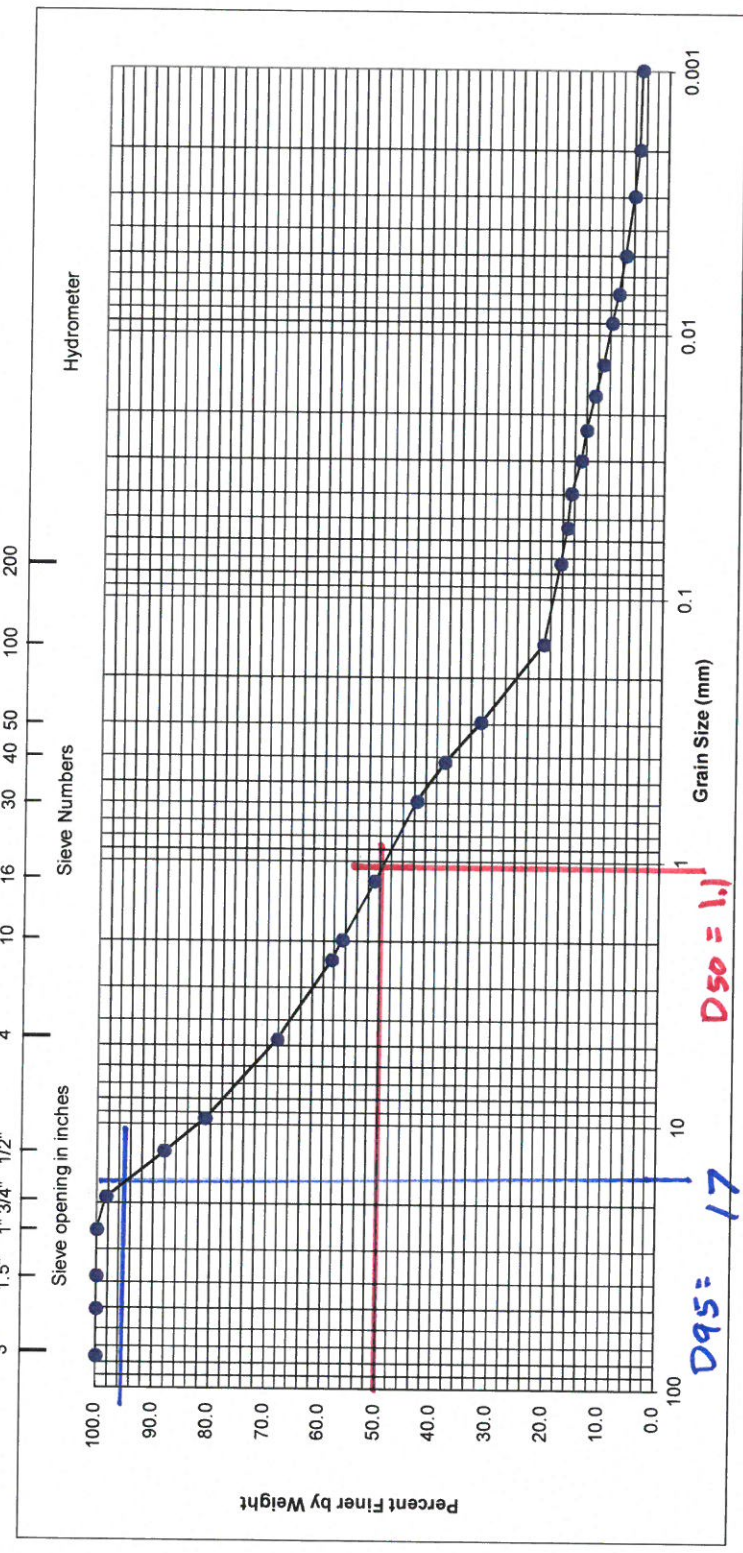
Boring No. D-2

Sample No. 00-1

Depth (ft.) 10-10.0

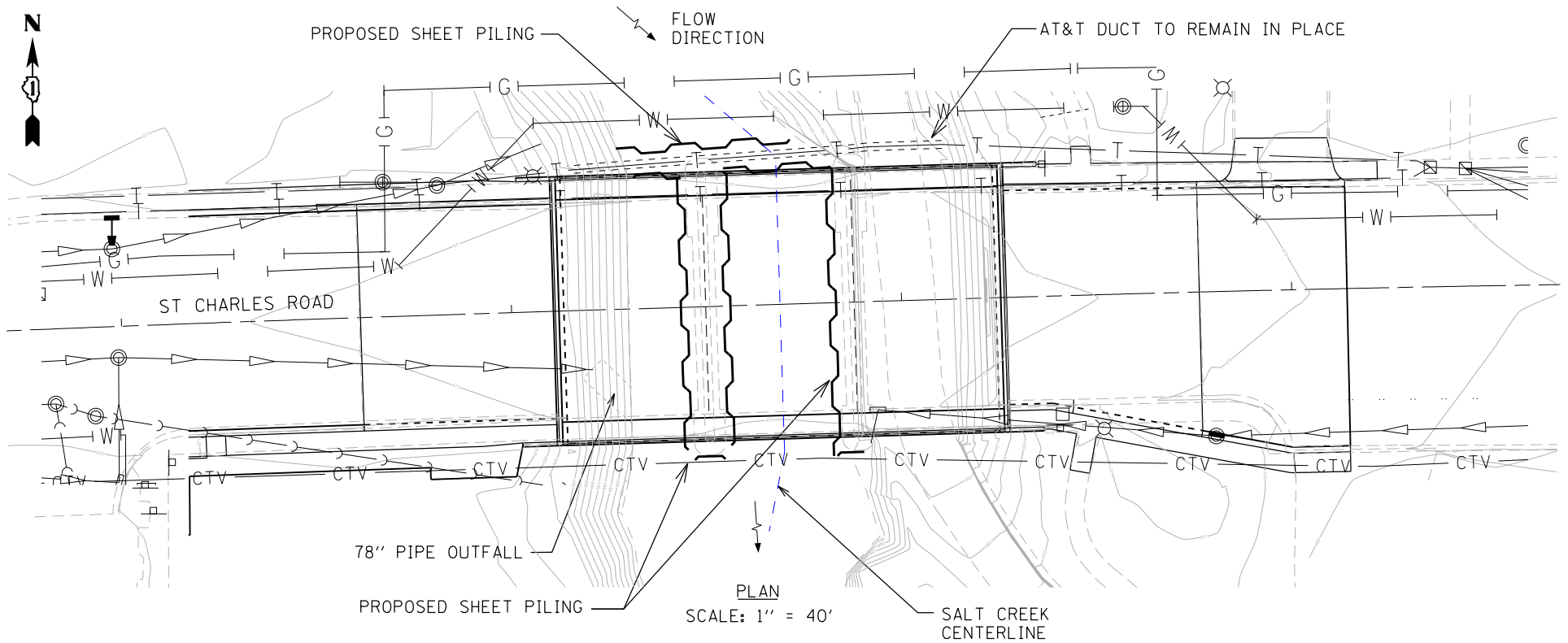
Soil Description: GRAY SAND / A-2-4(0)
(IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)

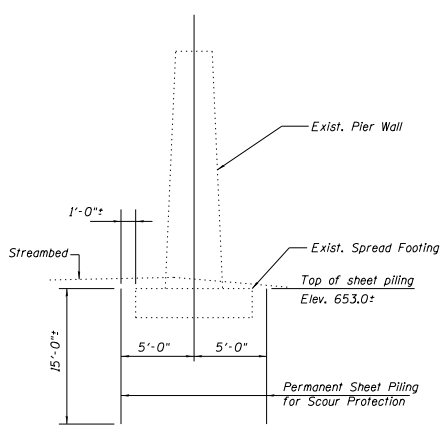


UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES
AASHTO	GRAVEL	COARSE SAND	COARSE SAND	FINE SAND	SILT
IDH	GRAVEL	SAND		SILT	CLAY

Gravel: 43.3% Sand: 38.3% Silt: 13.2% Clay: 5.2%

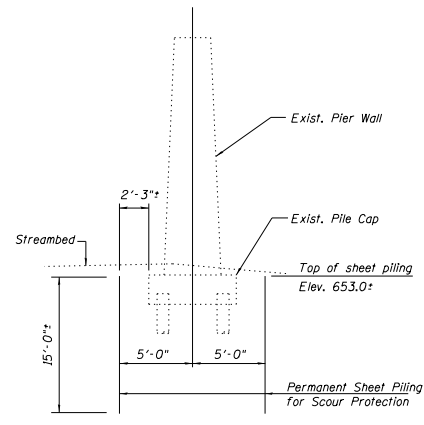


PLAN
SCALE: 1" = 40'



TYPICAL SECTION THRU PIER
NEAR EDGE OF DECK

ELEVATION
SCALE: NTS



TYPICAL SECTION THRU PIER
NEAR CENTERLINE OF BRIDGE

ROUTE: FAU 1397 (ST. CHARLES RD)
 SECTION: 15-00094-00-BR
 WATERCOURSE: SALT CREEK
 EXISTING SN: 022-6950
 SCALE: VARIES
 PLOTTED BY: VAS DATE: 10-10-18
 CHECKED BY: PM DATE: 10-12-18
 SURVEY DATED: 11-20-2015

SCOUR DESIGN SKETCH
SALT CREEK / ST. CHARLES RD.

**STRUCTURE GEOTECHNICAL REPORT
ST. CHARLES ROAD OVER SALT CREEK
VILLAGE OF VILLA PARK
DUPAGE COUNTY, ILLINOIS**

PREPARED FOR
V3 COMPANIES OF ILLINOIS LTD.
WOODRIDGE, ILLINOIS

DECEMBER 21, 2015

PREPARED BY



EVEREST ENGINEERING COMPANY

915 WEST LIBERTY DRIVE
WHEATON, ILLINOIS 60187
PH: 630-462-9797

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	<i>MOISTURE-DENSITY RELATIONS</i>	
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	<i>PILE DESIGN TABLES</i>	

**STRUCTURE GEOTECHNICAL REPORT
ST. CHARLES ROAD OVER SALT CREEK
VILLAGE OF VILLA PARK,
DUPAGE COUNTY, ILLINOIS**

1. INTRODUCTION

The Village of Villa Park and the Illinois Department of Transportation (IDOT) have proposed the rehabilitation of the St. Charles Road Bridge over Salt Creek. As part of the rehabilitation program, the design engineer, V3 Companies of Illinois Ltd. (V3), is considering one of the following options.

- Removal and replacement of the bridge superstructure utilizing the existing foundations.
- Complete (superstructure and substructure) removal and replacement of the existing bridge.

This report presents geotechnical engineering studies, analyses and recommendations for reconstruction of the proposed bridge. To investigate subsurface conditions, 4 borings B-1 thru B-4 were drilled. The structure location and boring locations are shown on *Sheet 1*, attached in the *Appendix*.

The broad objectives of this investigation were to determine the soil profile, the probable geologic origins of the soils, and the apparent variability of the underlying soils across the site. The objectives also included estimation of the probable behavior of the soils due to imposed loads and to provide soils-related recommendations; and to identify perceived geotechnical conditions that might affect anticipated construction operations. Reference is made to the *General Notices*, attached in the *Appendix*, for additional information that should be considered in the planning and preparation of the contract documents.

The scope of our services for this study did not include any environmental assessment for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the Soil Boring Logs regarding odors, color, or unusual or suspicious items or conditions, if any encountered during the performance of this subsurface investigation, are noted as observations only, strictly for the client's information.

The boring numbers and locations were proposed and staked in the field by V3. The borings were relocated as necessary to accommodate drill rig accessibility. The as-drilled coordinates (northing and easting) and elevations were surveyed by V3.

The investigations were authorized by Mr. George J. Schober of V3 Companies of Illinois Ltd.

2. EXISTING STRUCTURE AND PROPOSED IMPROVEMENTS

The general bridge plan of the existing three span bridge is attached in the *Appendix*. The existing bridge:

- Originally constructed in early 1900 with face to face of abutments of 110'-9" in length and out to out width of 47'-6". It is our understating that original abutments and piers are supported on wooden pile foundations.
- The bridge was widened in 1978 with out to out width of 68'-0". The widened structure is supported on shallow spread footings.

The details of the proposed improvements are not known to Everest at the time of this report. However, it is our understating that the design engineer is considering one of the following options.

- Removal and replacement of the bridge superstructure utilizing the existing foundations.
- Complete (superstructure and substructure) removal and replacement of the existing bridge.

3. GEOLOGY

Proposed bridge structure over Salt Creek is located in the Southeast $\frac{1}{4}$ of Section 3, Township 39 North and Range 11 East. The surficial deposits in the project area are part of Wisconsinan glaciation system and belong to the Wadsworth and Hager Members of Wedron Formation. The deposits encountered primarily consist of clayey, silty and sandy till relatively low in content of pebbles, cobbles, and boulders.

Adapted from:

Summary of the Geology of Chicago Area by H. B. Willman (Circular 460, Illinois State Geological Survey) and Handbook of Illinois Stratigraphy by H.B. Willman, et. al., (Bulletin 95, Illinois State Geological Survey).

4. EXPLORATION AND TESTING

The drilling and investigation procedures used were in accordance with the guidelines contained in the *IDOT Geotechnical Manual*.

The investigation consisted of:

- a) Literature search
- b) Drilling the borings to aid in delineation of the variation and distribution of the soils both horizontally and in profile

4.1 Soil Borings

A total of 4 borings, B-1 thru B-4, were drilled by Everest for the proposed bridge in the months of November and December 2015. The depth of overburden varied from 40 feet in boring B-2 to 51.8 feet in boring B-4. The borings were drilled to the bedrock and then cored 10 feet into the bedrock. The boring locations are shown on *Sheet 1*, attached in the *Appendix*.

The borings were performed with a truck mounted rotary drill rig equipped with a hydraulic head. Borings B-1 and B-4 were drilled, behind the existing abutments, through the approach pavement, whereas boring B-3 was drilled, east of the existing east pier, adjacent to the existing bike path at the creek bank. The borings B-1, B-3 and B-4 were drilled using solid stem augers to depths varying from 11 feet to 15 feet and mud rotary drilling technique thereafter. In boring B-2 drilled east of the existing west pier, concrete sidewalk/bridge deck was cored and steel casing was installed through the core hole to the creekbed and mud rotary drilling technique was used.

The soil samples were obtained using standard penetration test (SPT) procedures in general accordance with *AASHTO T 206*. In general, soil samples were obtained at 2.5 foot intervals. To determine the scour reduction factor for various soil types, four continuous soil samples below the creekbed were obtained in borings B-2 and B-3. The subsurface exploration is summarized in *Table 4.1, Exploration Summary*. Subsurface conditions, visual soil descriptions and *IDH* soil classifications of various soil formations are presented on *Soil Boring Logs*, attached in *the Appendix*.

Table 4.1, Exploration Summary

Boring No.	Ground Surface Elevation (Feet)	Overburden / Top of Rock (Feet)	Rock Core Depth (Feet)	Total Depth (Feet)	Groundwater Depth / Elevation (Feet)		
					During Drilling	At Completion	After Completion
B-1	671.0	51 / 620.0	10	61	Dry	Mud Rotary	Grouted Immediately
B-2	671.9	40* / 616.9	10	50*	Stream	Mud Rotary	Grouted Immediately
B-3	661.4	46 / 615.4	10	56	7 / 654.4	Mud Rotary	Grouted Immediately
B-4	670.7	51.8 / 618.9	10	61.8	15 / 655.7	Mud Rotary	Grouted Immediately

* - Depth below creekbed

4.2 Field and Laboratory Testing

The field testing consisted of determination of unconfined compressive strength for the cohesive soil samples using a *Rimac* and/or *pocket penetrometer*. The laboratory testing consisted of determination of natural moisture content for all the soil samples. Nine (9) particle size analysis, 9 Atterberg limits, 2 unconfined compressive strength of soil, 4 unconfined compressive strength of rock, 1 moisture density relations, and 1 Illinois bearing ratio (IBR), tests were also performed for the selected samples. The test results are presented on the *Soil Boring Logs* and *Laboratory Test Data*, both attached in the *Appendix*.

4.3 Groundwater

Solid stem augers were utilized from the ground surface to the depths of 12.5 feet in boring B-1, 11 feet in boring B-3 and 15 feet in boring B-4, from where mud rotary drilling technique was used to the top of the bedrock. Prior to the mud rotary drilling, boring B-1 was found to be dry and groundwater was encountered at a depth of 7 feet (elevation 654.4) in boring B-3 and at a depth of 15 feet (elevation 655.7) in boring B-4. Boring B-2 was drilled using mud rotary drilling technique from the creekbed.

Groundwater levels were not noted during and after the completion of the mud rotary drilling and also after rock coring where water was utilized. Borings were grouted and patched immediately after the completion of drilling/coring. Based on the subsurface investigation, the groundwater elevation of ± 655 may be used for the design.

It is expected that the groundwater levels will vary from the observed in the future on a seasonal basis, depending upon the precipitation, runoff, infiltration, land use, and stream levels. Reference is also made to the *Section on Water Levels* in the *General Notices* attached in the *Appendix*.

5. GENERALIZED SUBSURFACE CONDITIONS

Borings B-1 and B-4 were drilled through the approach pavement consisting of 3 to 4 inches of asphalt pavement over 12 to 13 inches of concrete pavement. Below the approach pavement, crushed stone fill was encountered to a depth of 3 feet in boring B-1, whereas stiff sandy clay/clay and loose sand fill was encountered to a depth of 10.5 feet in boring B-4. In general, fills were underlain by loose to extremely dense granular soil layers with intermittent layers of medium stiff to hard clayey soils to the bedrock at elevations 620.0 in boring B-1 and 618.9 in boring B-4.

Boring B-2 was drilled through 13 inches thick concrete sidewalk/bridge deck. Upper 4 feet of creekbed soils consisted of 1.5 feet of loose sandy loam underlain by 2.5 feet of very stiff clay. In general, loose to extremely dense granular soil layers with intermittent layers of stiff to very stiff clayey soils were encountered to the bedrock at elevation of 616.9.

In boring B-3, about 1 foot thick topsoil was encountered at the surface, which was generally underlain by soft to very stiff clayey soils to a depth of 20.5 feet and subsequently underlain by loose to extremely dense granular soil layers to the bedrock at elevation of 615.4.

The generalized subsurface conditions are shown on *Sheet 2*, attached in the *Appendix*.

6. ANALYSES AND RECOMMENDATIONS

6.1 Seismic Data

The seismic data for the LRFD design are:

- Seismic Performance Zone (SPZ) = 1
- Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.087g
- Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.153g
- Soil Site Class = D

Based on the seismic data, liquefaction of the granular soils is not anticipated.

6.2 Abandoned Mines

No former mining activity is indicated in the ISGS records near the project location.

6.3 Overall Stability

Based on existing abutment end slopes of 1.5H:1V, no overall stability problems are anticipated for the end slope of 1.5H:1V or flatter.

6.4 Scour Protection

The hydraulic report is not available to Everest at the time of this report. Based on the soils encountered in boring B-2 drilled through the creekbed and using the guidelines provided in the *IDOT Bridge Manual, Section 2.3.6.3.2*, recommended reduction in the theoretical, predicted scour depth is presented in *Table 6.1*.

Table 6.1, Scour Depth Reduction

Depth Below Existing Creekbed in Boring B-2 (Feet)	Elevations (Feet)	Soil Type	Scour Depth Reduction (%)
0 to 1.5	±656.9 to ±655.4	Sand and Gravel	0
1.5 to 4.0	±655.4 to ±652.9	Loam ($Q_u > 1.5$ tsf) with substantial Sand and Gravel	0
4.0 to 6.0	±652.9 to ±650.9	Sandy Loam	0
6.0 to 10.5	±650.9 to ±646.4	Silty Loam	0

Riprap or other revetments at piers and slopewalls at the bridge abutments may be considered for scour protection.

6.5 Foundations

It our understanding that the existing abutments and piers of the original construction are supported on deep foundations (wooden piles) and widened structure is supported on shallow foundations (spread footings). For reconstruction of the new bridge, Everest considered both shallow and deep foundation options.

6.5.1 Shallow Foundation

Everest encountered loose granular and clayey soils with Q_u equal to or less than 1.5 tsf below the anticipated footing grades (elevation 651). It is our opinion that shallow foundation may not be an economically viable option due to anticipated removal and replacement of about 5 to 9 feet of weak soils.

6.5.2 Deep Foundation

Deep foundations such as metal shell cast-in-place concrete piles (MSP) or steel H-piles (HP) may be considered to support the new bridge. The pile design tables for various sizes of MSP and HP, using the *IDOT LRFD Geotechnical Pile Design Procedure*, are attached in the *Appendix*. The pile design tables summarize estimated ground surface against pile during driving, estimated bottom of the pile cap elevation, nominal required

bearing, factored resistance available below the pile cap and estimated pile length which includes length of pile from the bottom the pile cap and embedment. The estimated ground surface elevation against pile during driving, bottom of pile cap elevation, pile embedment and pile cutoff elevation are presented in *Table 6.2*. The pile lengths should be adjusted for the length of the embedment other than stated in *Table 6.2*.

Table 6.2, Pile Embedment and Elevations

Substructure	Ground Surface Elevation Against Pile During Driving (Feet)	Bottom of Pile Cap Elevation (Feet)	Pile Embedment (Feet)	Pile Cutoff Elevation (Feet)
West Abutment	±664.00	±664.00	1	±665.00
East Abutment	±664.00	±664.00	1	±665.00
West Pier	±651.00	±651.00	1	±652.00
East Pier	±651.00	±651.00	1	±652.00

Piles should be driven in accordance with *Section 512 - Piling*, as presented in the *Standard Specifications for Road and Bridge Construction*, by the *Illinois Department of Transportation*. Based on the subsurface conditions, Everest anticipates some hard driving conditions through dense soil layers and recommends using pile shoes for driving the MSP and HP. Everest recommends driving at least one test pile per substructure. The contractor should drive test piles to 110 percent of the Nominal Required Bearing specified in permanent locations at substructures specified or approved by the Engineer before ordering the remainder of piles.

6.6 Settlement

Everest does not anticipate any significant additional loads behind the abutments and hence, no settlement problems are anticipated.

6.7 Embankment and Backfill

The construction of embankment should be performed in accordance with the *Illinois Department of Transportation, Standard Specifications for Road and Bridge Construction (IDOT SSRBC), Section 205*. In general, after the removal of vegetation, topsoil, and other unsuitable materials, excavated soils along the roadway should be suitable for embankment fill. Prior to the use of any on-site or borrow material in the construction of embankment, the materials should be tested and evaluated to verify that the materials meet the embankment material requirements.

The excavation and backfilling should be in accordance with the requirements of *IDOT SSRBC, Section 502*. The backfill should be placed in approximately continuous horizontal layers not more than ten (10) inches in thickness, loose measurement, and each layer should be compacted in-place in accordance with *Article 205.05* of the *IDOT SSRBC*. Over compaction of materials should be avoided.

6.8 Lateral Loads

In addition to vertical loads, the substructure units will also be subjected to lateral loads including lateral earth pressure due to backfill, live loads, and wind loads.

Lateral Resistance

The lateral loads acting on the bridge structure will be transferred to the deep foundations. Lateral loading of a deep foundation is a soil-structure interaction problem. The deflection of the deep foundation depends on lateral strength of soils and stiffness of the deep foundation. The detailed lateral capacity analysis includes factors such as magnitude, point of application and inclination of load, allowable deflection and structural design of the deep foundation. The nominal resistance of deep foundations to lateral loads should be evaluated based on both soils and foundation element properties. A soil resistance factor of 1.0 should be used to estimate lateral capacity as specified in *AASHTO LRFD Table 10.5.5.2.3-1*.

To determine the lateral capacity of the MSP and HP, analyses may be performed using available computer programs based on the P-Y analysis like *LPILE*. The estimated parameters of various soils for calculating the lateral loads are presented in *Table 6.3*.

Table 6.3, Estimated Soil Parameters

Soil Type	γ Unit weight (lb/ft ³)	γ' Effective Unit Weight (lb/ft ³)	Φ Angle of Internal Friction (deg)	ϵ_{50} Strain at 50% Stress Level	Soil Modulus		$c^{(a)}$ Undrained Shear Strength (tsf)
					k-static (lb/in ³)	k-cyclic (lb/in ³)	
Fill – Clay, Sandy Clay	125	63	---	0.007	500	200	0.5
Fill – Sand, Crushed Stone	125	63	30	---	20/25 ^(b)	20/25 ^(b)	---
Soft – Clay, Silty Clay, Clay Loam	115	53	---	0.02	30	---	0.1 - 0.25
Medium Stiff – Clay, Silty Clay, Clay Loam	120	58	---	0.01	100	---	0.25 - 0.50
Stiff – Clay, Silty Clay, Clay Loam	125	63	---	0.007	500	200	0.50 - 1.00
Very Stiff – Clay, Silty Clay, Clay Loam	130	70	---	0.005	1,000	400	1.00 - 2.00
Hard – Clay, Silty Clay, Clay Loam	135	73	---	0.004	2,000	800	2.00 - 4.00
Loam, Silty Loam	115	53	26	---	20/25 ^(b)	20/25 ^(b)	---
Loose – Sand, Sandy Loam	115	53	30	---	20/25 ^(b)	20/25 ^(b)	---
Medium Dense – Sand, Sandy Loam	125	63	34	---	60/90 ^(b)	60/90 ^(b)	---
Dense to Extremely Dense – Sand, Sandy Loam	130	68	38	---	125/225 ^(b)	125/225 ^(b)	---

(a) - See Soil Boring Logs, $c = q_u/2$ where q_u = unconfined compressive strength
(b) - k for submerged sand/k for sand above water table

Lateral Earth Pressures

The lateral earth pressure exerted on the abutments and wingwalls will depend upon their stiffness, the type and density of the backfill placed behind and the drainage provisions. The backfill materials behind the abutments and wingwalls should be granular with a minimum drained friction angle of 30 degrees. The unit weight of 0.120

kcf, coefficient of active pressure of 0.33 and 2 feet of earth surcharge equivalent to 0.250 ksf should be used to calculate the lateral earth pressure.

6.9 Drainage

To reduce the buildup of hydrostatic pressure behind the abutments and wingwalls, it is preferred that a free draining granular material be used as backfill. The geocomposite drain may be used for cast-in-place (CIP) concrete walls as described in the *IDOT SSRBC*. In case weepholes are proposed to mitigate the hydrostatic pressure for the CIP concrete walls, the weepholes may be approximately 3 inch in diameter, spaced approximately 8 feet apart horizontally and 6 feet apart vertically. To avoid migration of fines resulting in blockage, the weepholes should be protected on the soil side by using a properly designed granular filter.

7. CONSTRUCTION CONSIDERATIONS

7.1 Seepage

No major excavation is expected for the proposed bridge. Some seepage and associated caving of materials should be expected during construction. For shallow excavations, normal sump and pump dewatering method should be adequate to keep excavations dry during construction. Any soil that has been softened by water should be removed prior to placing any fills and/or concrete. A cofferdam/diversion of the existing creek may be required for excavation and concrete placement to proceed in dry conditions.

7.2 Safety

The Health and Safety Act of the State of Illinois, together with the related Health and Safety Rules, all federal requirements, area specifications for excavation and slopes, and all other ordinances, statutes or building codes relating to construction operations and/or temporary sheeting and bracing of trenches and excavations must be observed.

7.3 Excavation Slopes

In general, the soils on this site should not be excavated with side slopes steeper than 1.5H:1V unless temporary sheeting and bracing are used. For temporary excavation slopes related *Occupational Safety and Health Administration (OSHA)* standards should be observed. Piles of excavated soils and heavy construction equipment should not be permitted closer to the top of any excavation than a distance equal to two (2) times the depth of the excavation, in order to reduce the possibilities of cave-ins.

7.4 Quality Control/Quality Assurance

For quality control/quality assurance purposes in general, and when the field conditions differ from the conditions described in the structure geotechnical report are encountered, the services of a qualified geotechnical engineer/inspector should be utilized for proper testing and evaluation of the soils and other construction materials and activities.

8. GENERAL

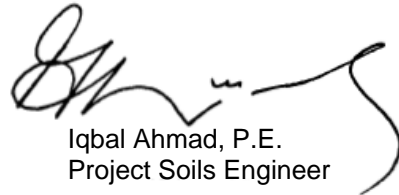
Soil conditions can change with the passage of time due to changes in the elevation of the groundwater table, changes in climatic conditions and other factors not evident at the time of this investigation. Also, variations can occur at locations between the borings, due to variations in the fill materials and the time of deposition. For these reasons, any soft areas or soil conditions believed to be different than those described herein, which are revealed during construction should be further investigated before construction proceeds.

The information in *Section 7* has been provided for use by the designers and field inspection personnel. It is not intended to be a complete description of problems which may be encountered by the contractor during construction.

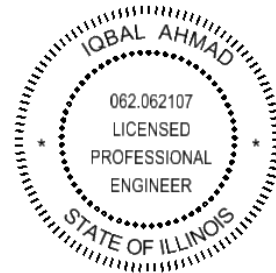
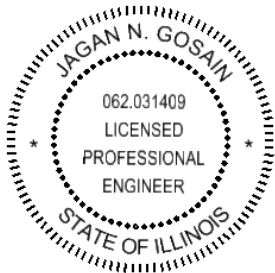
Respectfully submitted,
EVEREST ENGINEERING COMPANY



Jagan N. Gosain, P.E.
Principal Soils Engineer



Iqbal Ahmad, P.E.
Project Soils Engineer



APPENDICES

GENERAL NOTICES

GENERAL NOTICES

1. WARRANTY

The Geotechnical Engineer has prepared this report in accordance with generally accepted geotechnical engineering practices and makes no other warranties either expressed or implied. In no event does the Geotechnical Engineer accept any liability beyond the extent of fee collected for this work.

2. SOIL & ROCK DESCRIPTIONS

Unless otherwise noted, the soil and/or rock descriptions indicated on the boring logs are visual identifications and, generally, are not the result of laboratory identification testing. As such, they may not conclusively represent exact subsurface conditions. The soil and/or rock identifications indicated on the boring logs are based upon examination of samples in the field or delivered to the laboratory, and interpretation of field observations during drilling, and may not completely represent conditions in the ground.

Soil and/or rock samples are retained in our laboratory for ninety days and are then destroyed unless special disposition is requested by our client.

3. UNANTICIPATED SOIL & ROCK CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings and/or rock cores performed at the specific locations indicated, and subsequent laboratory testing of these samples. This yields a representative, but not necessarily exhaustive, picture of the subsurface conditions. The possibility of variations from expected conditions increases with spacing between borings and frequently requires that additional information be obtained to attain a properly constructed project. The Geotechnical Engineer should be contacted whenever unanticipated conditions are encountered, as these unanticipated conditions may alter conclusions and recommendations contained in the report.

4. CHANGED CONDITIONS

It is recommended that all construction contracts relating to foundations and earthwork include a *changed conditions* clause to establish procedures to be followed should unanticipated conditions be encountered.

No claim by the contractor for any conditions differing from those anticipated in the plans and specifications and indicated by the original geotechnical studies should be allowed unless the contractor has so notified the owner, verbally and in writing of such change in conditions.

It is further recommended that all foundation work and site improvements be inspected by a Registered Professional Engineer with substantial experience in Geotechnical Engineering.

5. CHANGED STRUCTURE OR LOCATIONS

This report has been prepared to aid in the evaluation of this project and to assist the architect and/or engineer in the design of this project. In the event that any changes, however slight, in the design or location of the structure as outlined in this report are planned, or any structures are included or added that are not discussed in this report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or approved in writing by the Geotechnical Engineer.

6. OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water, boulders, hazardous or toxic material, gas, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, odors, obstructions, etc.; however, lack of mention does not preclude their presence.

7. BOULDERS, COBBLES AND GRAVEL

Boulders, cobbles and coarse gravel cannot be accurately observed or measured without special, large diameter borings and special samplers. Therefore, their absence from the boring logs does not preclude their existence.

8. LOCATION OF BURIED OBJECTS

All users of this report are cautioned that no attempt was made by the Geotechnical Engineer to locate any man-made buried objects during the course of this investigation. The Geotechnical Engineer can not be responsible for any buried man-made objects that are encountered during construction that are not discussed in the text of this report. The contractor is reminded to contact all utility companies to verify underground service locations, prior to any excavation work.

9. GROUNDWATER LEVELS

Groundwater level readings have been made in the bore holes at times and under conditions stated on the boring logs. Groundwater levels may not have stabilized at the last reading and show only the conditions observed at the time that the borings were drilled, unless otherwise noted. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, runoff, infiltration, land use, area lake/stream levels, temperature, and other factors not evident at the time measurements were made and reported herein. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

10. USE OF REPORT BY BIDDERS

Bidders who are examining this report prior to submitting a bid are cautioned that this report was prepared as an aid to the designers of the project and it is not intended to reflect subsurface conditions as they may affect actual constructions operations.

11. STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs and soil profiles which accompany this report. However, actual change in the ground may be gradual. Where changes occur between soil samples, the location of the changes are estimated using all available information and may not be shown at the exact actual depth.

12. CONSTRUCTION FOLLOW-UP

It is recommended that during construction of all foundation work and site improvements a qualified Geotechnical Engineer be retained to assure compliance with the recommendations contained in this report and with project specifications and to assist with making necessary field adjustments and to document changed conditions.

Everest Engineering Company would welcome the opportunity to provide continuous on-site geotechnical services during excavation, backfilling, compaction, foundation preparation, and paving operations, etc.

**SOIL IDENTIFICATION TERMINOLOGY
AND
LEGEND**



SOIL IDENTIFICATION TERMINOLOGY

Soils are identified and classified in this report according to the AASHTO/IDH Classification system with the following modifiers:

RELATIVE DENSITY OF GRANULAR SOILS

DESCRIPTION	BLOWS PER FOOT
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	50 to 80
Extremely Dense	80+

CONSISTENCY OF COHESIVE SOILS

DESCRIPTION	Q _u (tsf)
Very Soft	0 to 0.25
Soft	0.25 to 0.50
Medium Stiff	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	4.0 to 8.0
Very Hard	8.0+

PARTICLE SIZE

COMPONENT	SIZE
Boulders	Over 8"
Cobbles	3" to 8"
Gravel - Coarse	3/4" to 3"
Gravel - Fine	* No. 4 to 3/4"
Sand - Coarse	* No. 10 to *No. 4
Sand - Medium	* No. 40 to *No. 10
Sand - Fine	* No. 200 to *No. 40
Fines - Silt and Clay	Below *No. 200

RELATIVE PROPORTIONS

DESCRIPTIVE TERM	PERCENT
Trace	0 to 10
Little	10 to 20
Some	20 to 35
And	35 to 50

STRATIFICATION

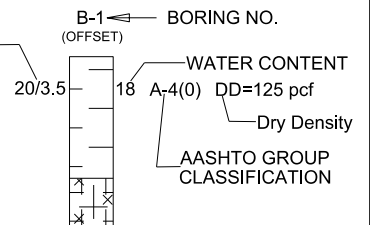
Parting	0 to 1/16"
Seam	1/16" to 1/2"
Layer	1/2" to 12"
Stratum	Greater than 12"
Varved Clay	Alternating seams or layers of sand, silt and clay
Pocket	Small, erratic deposits, usually less than 12"
Lens	Lenticular deposit
Occasional	One or less per 12"
Frequent	More than one per 12"

ABBREVIATIONS ON LOGS OF SUBSURFACE DATA

AS	Auger Sample
SS	Split spoon sampler, 2" OD, 1 3/8" ID
ST	Thinwall tube sampler, 3" OD, 2 7/8" ID
Q _u	Unconfined compressive strength (pocket penetrometer, Rimac, or load frame)
LL	Liquid Limit
PI	Plasticity Index
OC	Organic Content (%)
B	Bulge
S	Shear
P	Pocket Penetrometer


LEGEND

	TOPSOIL		CLAY LOAM		WATER LEVEL DURING DRILLING
	ASPHALT PAVEMENT		SILTY CLAY LOAM		WATER LEVEL AT COMPLETION
	CONCRETE PAVEMENT		SANDY CLAY LOAM		WATER LEVEL HRS. AFTER COMPLETION
	CRUSHED STONE		LOAM		
	PEAT		SILTY LOAM	"N" VALUE (WHOLE NO.) / q _u (tsf)	
	FILL		SILT		
	CLAY		SANDY LOAM		
	SILTY CLAY		SAND		
	SANDY CLAY		DOLOMITE		



**SHEET 1,
PROJECT / BORING LOCATION MAP**



LEGEND
 DRILLED BORING

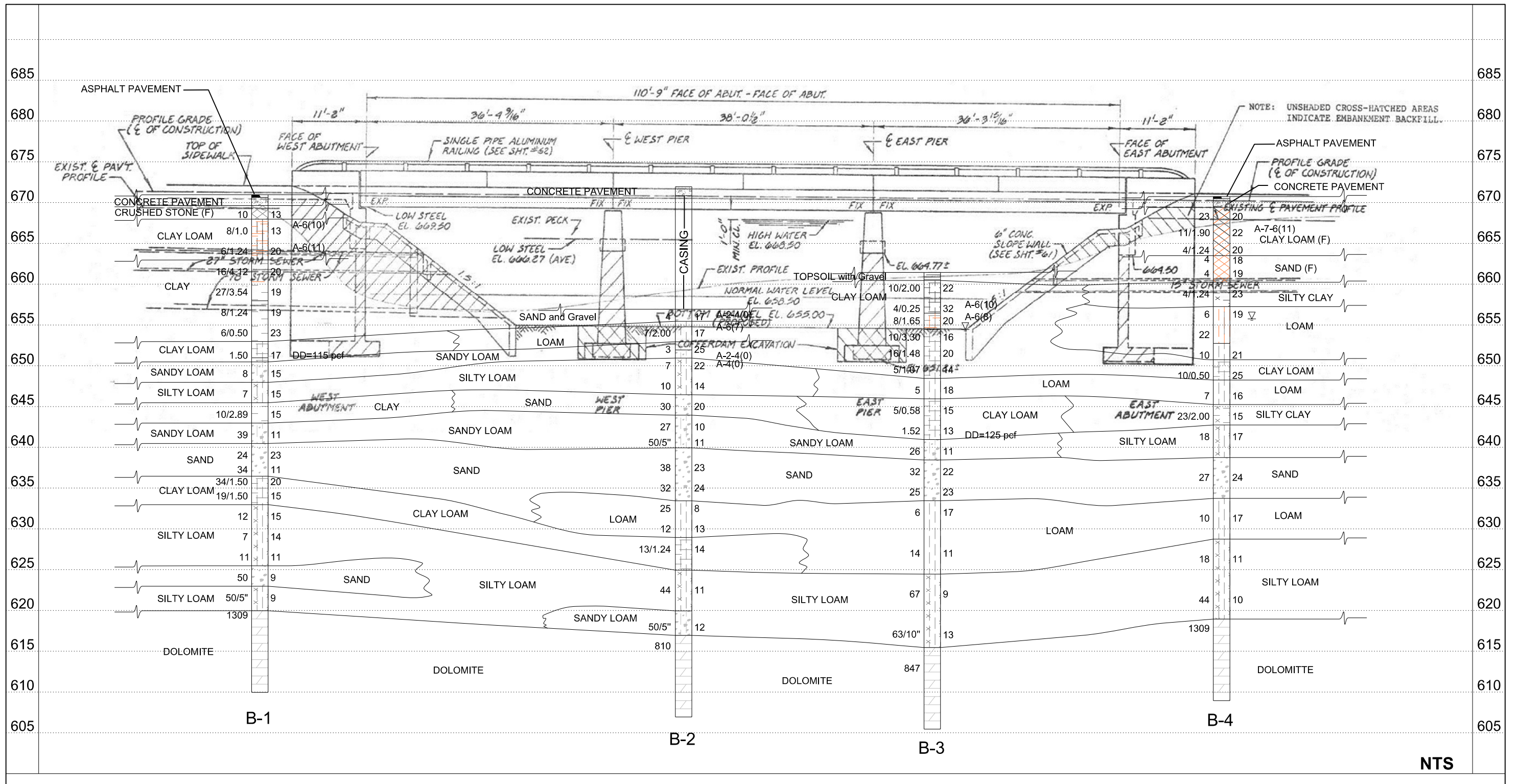


PROJECT / BORING LOCATION MAP

**ST. CHARLES ROAD BRIDGE OVER SALT CREEK
 VILLA PARK, IL**

CLIENT	V3 COMPANIES OF ILLINOIS LTD.
DATE	12/16/2015
JOB NO.	1264
SHEET NO.	1

**SHEETS 2,
GENERALIZED SUBSURFACE PROFILE**



GENERALIZED SUBSURFACE PROFILE

ST. CHARLES ROAD BRIDGE OVER SALT CREEK
VILLA PARK, IL

CLIENT	V3 COMPANIES OF ILLINOIS LTD.
DATE	12/21/2015
JOB NO.	1264
SHEET NO.	2

SOIL BORING LOGS



EVEREST ENGINEERING COMPANY
 915 WEST LIBERTY DRIVE, WHEATON, IL 60187

SOIL BORING LOG

PROJECT BRM-4003 (508) **DESCRIPTION** St. Charles Road Bridge over Salt Creek **LOGGED BY** K. Krug

ROUTE FAU 1397 (St. Charles Road) **SECTION** 5-00094-00-BR **LOCATION** SE 1/4 SEC. 3 TWP. 39N RNG. 11E PM. 3rd

COUNTY DuPage **DRILLING METHOD** Solid Stem Auger / Mud Rotary below 12.5 feet **HAMMER TYPE** Automatic

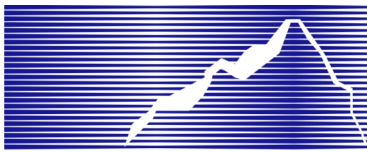
STRUCT. NO. 0226950
Station _____
BORING NO. B-3
Station _____
Offset _____
Northing 1,902,759.65
Easting 1,084,859.85
Ground Surface Elev. 661.4 **ft**

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____ ft	D	B	U	M
Stream Bed Elev. _____ ft	E	L	C	O
Groundwater Elev.:	P	W	S	I
First Encounter <u>654.4 (7.0)</u> ft ▽	T	S	Q	S
Upon Completion <u>Mud Rotary</u> ft	H	S	U	T
After _____ Hrs.	(ft)	(/6")	(tsf)	(%)

Soil Description	Depth (ft)	Blows (/6")	UCS (tsf)	Moist (%)	Soil Description	Depth (ft)	Blows (/6")	UCS (tsf)	Moist (%)
TOPSOIL with Gravel	660.4				Medium Dense, Gray SANDY LOAM some - Gravel	640.9			
Very Soft to Very Stiff, Black CLAY LOAM trace - organics, roots, gravel	3	5	2.00 _P	22		13			
	5					14			11
	5					12			
						638.4			
Grain Size	1				Medium Dense to Dense, Gray SAND				
LL=41, PI=20, A-6(10)	2	0.25 _P	32			10			
	2					15			22
656.4 -5	2					17			
Brown and Gray from 5 to 7 feet	1					-25			
Grain Size	3	1.65 _B	20						
LL=32, PI=13, A-6(8)	5					15			
	7					15			23
654.4 ▽	3					10			
Gray below 7 feet	5	3.30 _B	16						
	5					633.4			
	10				Loose to Medium Dense, Gray LOAM trace - gravel				
	5					2			
	8	1.48 _B	20			3			17
	8					3			
	9								
	0	1.07 _B	14						
	1								
	4								
648.4									
Loose, Gray LOAM trace - gravel	2					6			
	2			18		6			11
	3					8			
						-35			
645.9									
Medium Stiff to Stiff, Gray CLAY LOAM trace - gravel	2								
	2	0.58 _B	15						
	3					624.4			
					Very Dense to Extremely Dense, Gray SILTY LOAM some - gravel				
						34			
		1.52 _{ST}	13			28			9
						39			
Dry Density=125 pcf	-20					-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge and S-Shear on Rimac/Shelby Tube (ST), P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



EVEREST ENGINEERING COMPANY
 915 WEST LIBERTY DRIVE, WHEATON, IL 60187

SOIL BORING LOG

PROJECT BRM-4003 (508) **DESCRIPTION** St. Charles Road Bridge over Salt Creek **LOGGED BY** K. Krug

ROUTE FAU 1397 (St. Charles Road) **SECTION** 5-00094-00-BR **LOCATION** SE 1/4 SEC. 3 TWP. 39N RNG. 11E PM. 3rd

COUNTY DuPage **DRILLING METHOD** Solid Stem Auger / Mud Rotary below 15 feet **HAMMER TYPE** Automatic

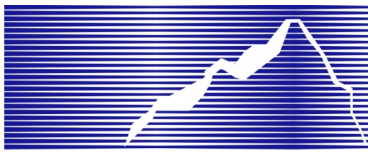
STRUCT. NO. 0226950
Station _____
BORING NO. B-4
Station _____
Offset _____
Northing 1,902,780.79
Easting 1,084,895.61
Ground Surface Elev. 670.7 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev.	ft	D E P T H	B L O W S	U C S Qu	M O I S T
Stream Bed Elev.	ft	(ft)	(/6")	(tsf)	(%)
Groundwater Elev.:					
First Encounter	655.7 (15.0)	ft	▽		
Upon Completion	Mud Rotary	ft			
After	Hrs.	ft			

Soil Description	Depth (ft)	Blows (/6")	UCS (tsf)	Moist (%)	Soil Description	Depth (ft)	Blows (/6")	UCS (tsf)	Moist (%)
ASPHALT PAVEMENT	670.5				Medium Stiff, Gray CLAY LOAM				
CONCRETE PAVEMENT	669.4				trace - gravel				
Stiff, Brown and Black CLAY LOAM		12				2			
trace - gravel		13		20		3	0.50 _p	25	
		10				7			
Grain Size		6							
LL=45, PI=23, A-7-6(11)		4	1.90 _B	22		2			
		-5				3			16
						4			
FILL	663.5	2	1.24 _B	20		-25			
Loose, Brown SAND		2		18					
some - gravel, miscellaneous fill									
		2							
FILL	660.2	2							
Stiff, Black SILTY CLAY		2	1.24 _B	23					
trace - organics									
		2							
	657.2								
Loose to Medium Dense, Brown and Gray LOAM		4							
trace - gravel		3		19					
		3							
		9							
		11							
		11							
Gray below 18 feet	652.7								
		3							
		4		21					
		6							
	650.7	-20							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge and S-Shear on Rimac/Shelby Tube (ST), P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)



EVEREST ENGINEERING COMPANY
 915 WEST LIBERTY DRIVE, WHEATON, IL 60187

SOIL BORING LOG

Date 12/1/15

PROJECT BRM-4003 (508) **DESCRIPTION** St. Charles Road Bridge over Salt Creek **LOGGED BY** K. Krug

ROUTE FAU 1397 (St. Charles Road) **SECTION** 5-00094-00-BR **LOCATION** SE 1/4 SEC. 3 TWP. 39N RNG. 11E PM. 3rd

COUNTY DuPage **DRILLING METHOD** Solid Stem Auger / Mud Rotary below 15 feet **HAMMER TYPE** Automatic

STRUCT. NO. 0226950
Station _____
BORING NO. B-4
Station _____
Offset _____
Northing 1,902,780.79
Easting 1,084,895.61
Ground Surface Elev. 670.7 ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____	ft
Stream Bed Elev. _____	ft
Groundwater Elev.:	
First Encounter <u>655.7 (15.0)</u>	ft ▽
Upon Completion <u>Mud Rotary</u>	ft
After _____ Hrs.	ft

D E P T H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Medium Dense, Gray LOAM trace - gravel <i>(continued)</i> <div style="text-align: right;">628.7</div>				
Medium Dense to Dense, Gray SILTY LOAM trace - gravel <div style="text-align: right;">618.9</div>	6		11	END OF BORING
	13			
	-45	5		-65
	25			
	21		10	
	-50	23		-70
DOLOMITE: Light to dark gray, fine grained, massive, thin to thick bedded, moderately to highly fractured, hard, slightly to moderately weathered trace - vugs, stylolites, chert Recovery = 98.0% RQD = 62.0% (Fair)		1309		
	-55			-75
	-60			-80

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge and S-Shear on Rimac/Shelby Tube (ST), P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

LABORATORY TEST DATA

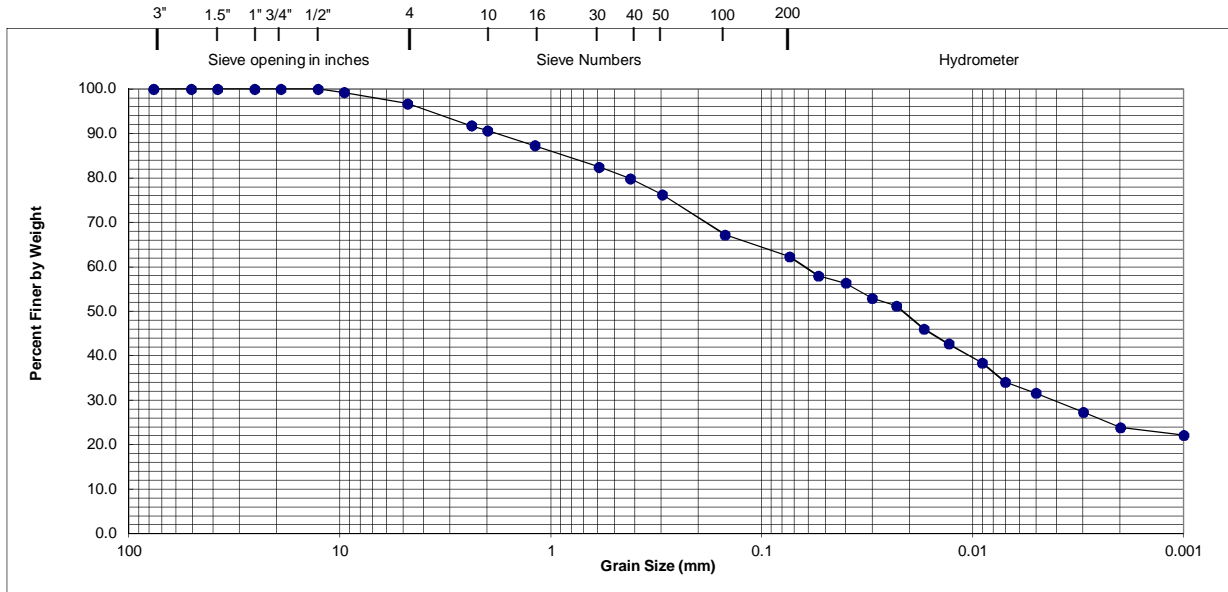
**PARTICLE SIZE ANALYSIS
&
ATTERBERG LIMITS**



Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-1 **Sample No:** Bag-1 **Depth (ft):** 3-8
Soil Description: BROWN AND BLACK CLAY LOAM / A-6(10)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)

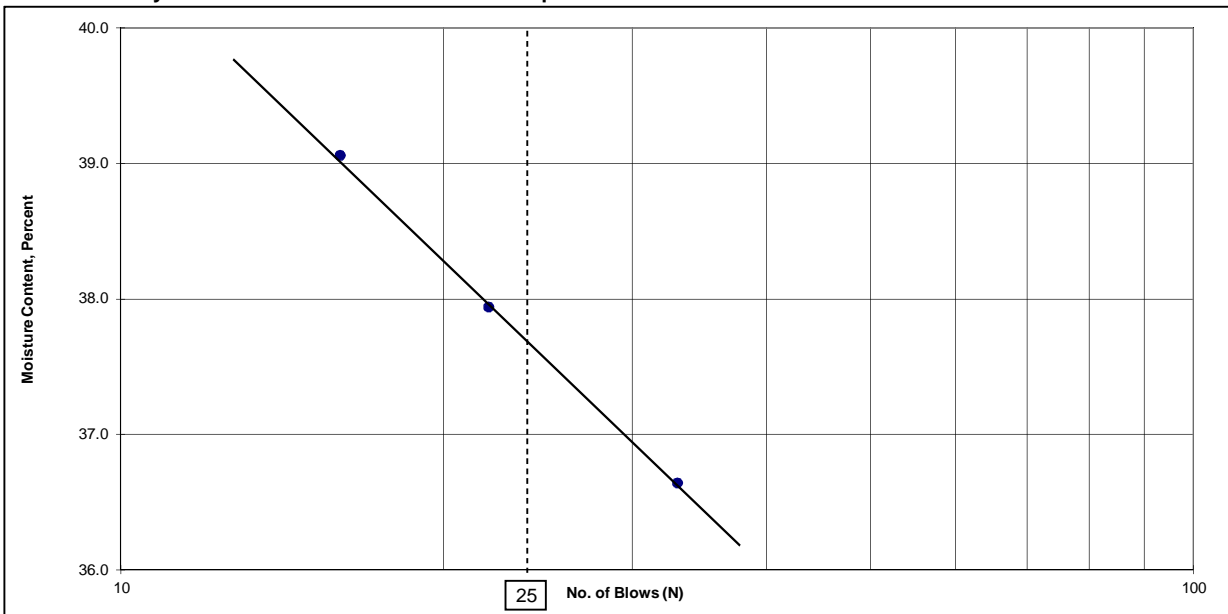


UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 9.3% **Sand:** 28.4% **Silt:** 38.4% **Clay:** 23.9%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

Preparation Method: AIR DRY **Estimated Retained on No. 40 Sieve (%):** 20.2
Plasticity Index: 20 **Liquid Limit:** 38 **Plastic Limit:** 18

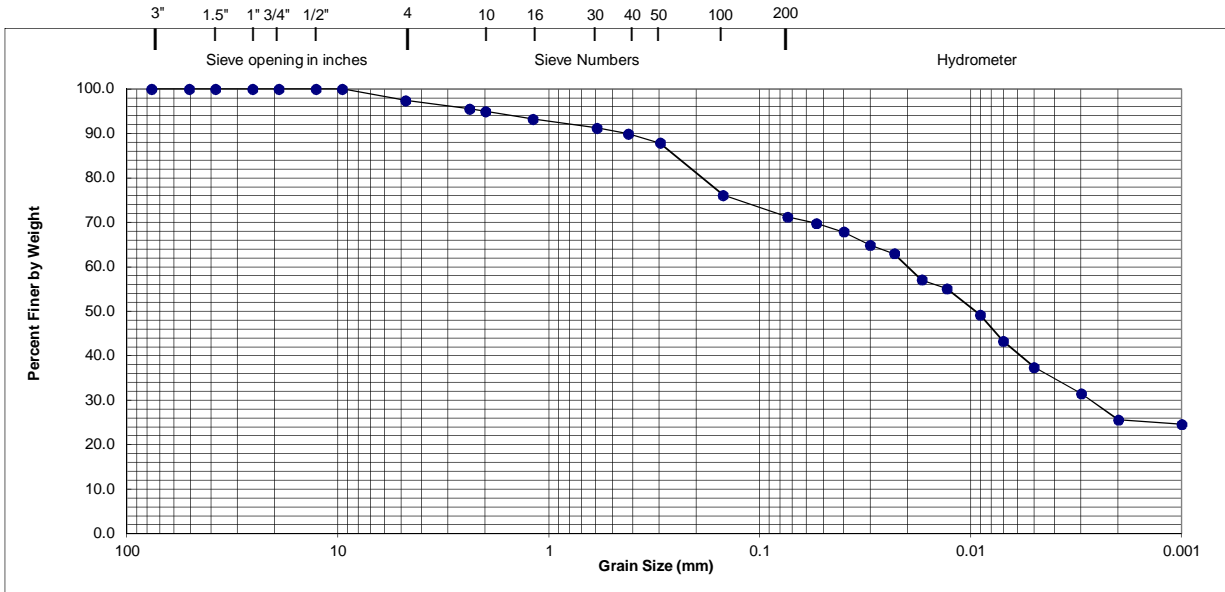




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-1 **Sample No:** SS-3 **Depth (ft):** 6-7.5
Soil Description: BROWN AND BLACK CLAY LOAM / A-6(11)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 5.1% **Sand:** 23.7% **Silt:** 45.7% **Clay:** 25.6%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

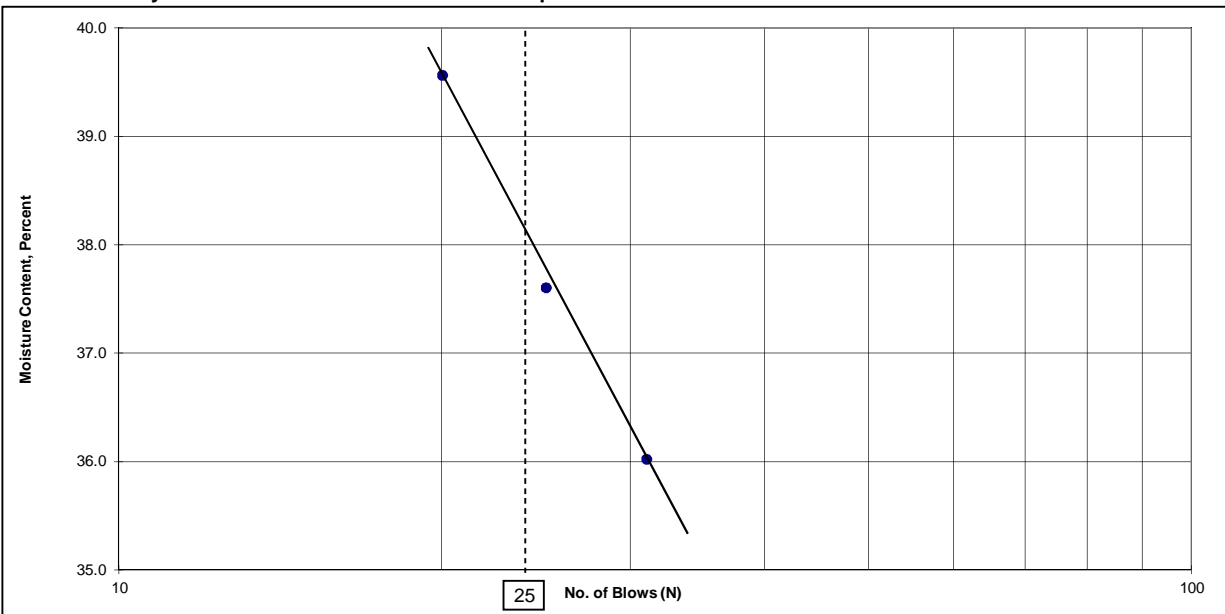
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 10.1

Plasticity Index: 17

Liquid Limit: 38

Plastic Limit: 21

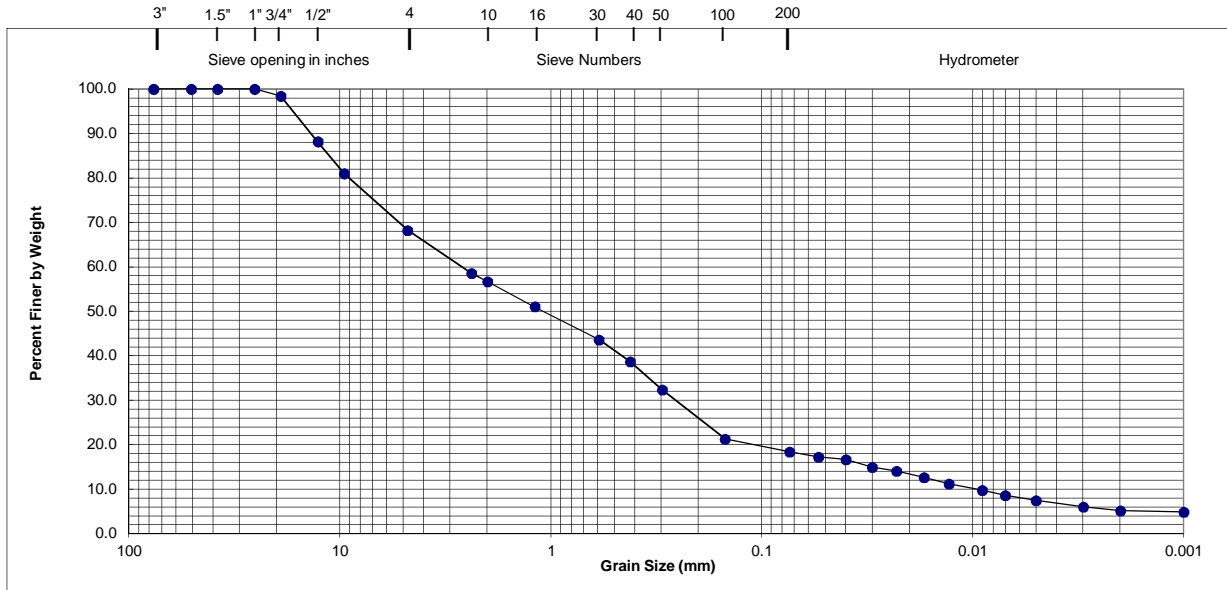




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-2 **Sample No:** SS-1 **Depth (ft):** 15-16.5
Soil Description: GRAY SAND / A-2-4(0)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 43.3% **Sand:** 38.3% **Silt:** 13.2% **Clay:** 5.2%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

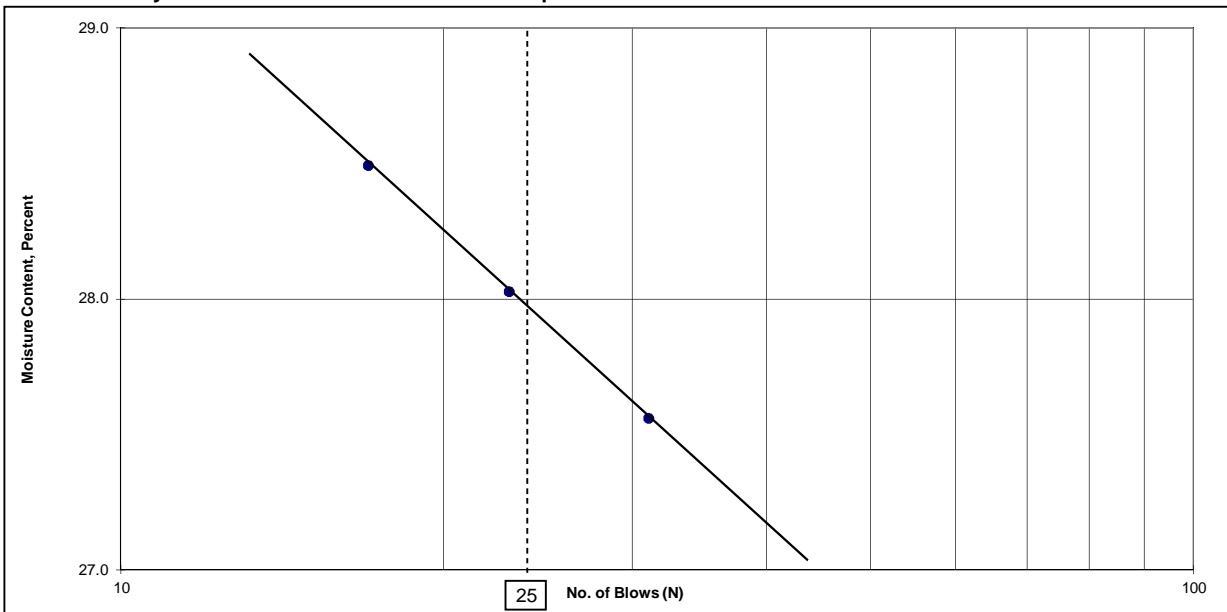
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 61.3

Plasticity Index: 7

Liquid Limit: 28

Plastic Limit: 21

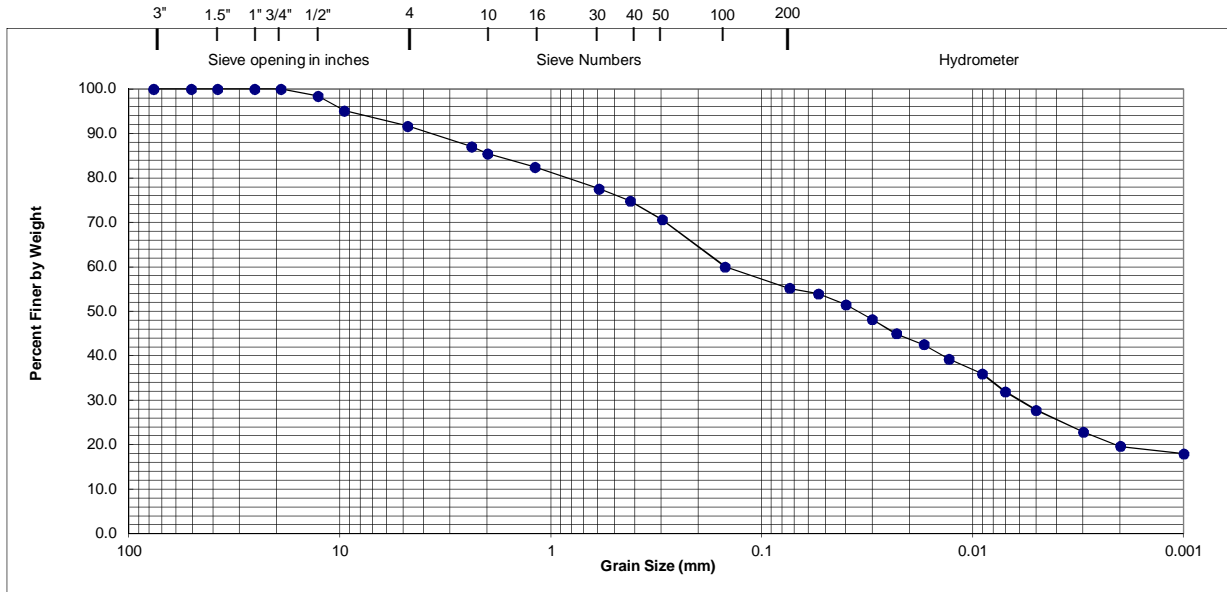




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-2 **Sample No:** SS-2 **Depth (ft):** 16.5-18
Soil Description: GRAY LOAM / A-6(7)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 14.6% **Sand:** 30.3% **Silt:** 35.5% **Clay:** 19.6%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

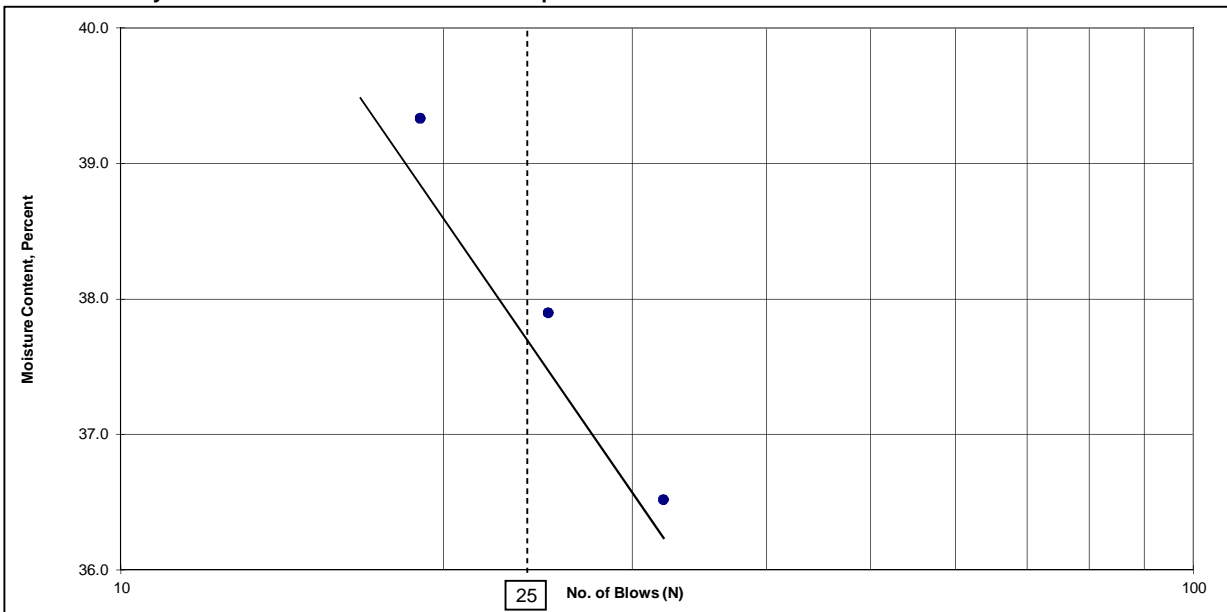
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 25.2

Plasticity Index: 17

Liquid Limit: 38

Plastic Limit: 21

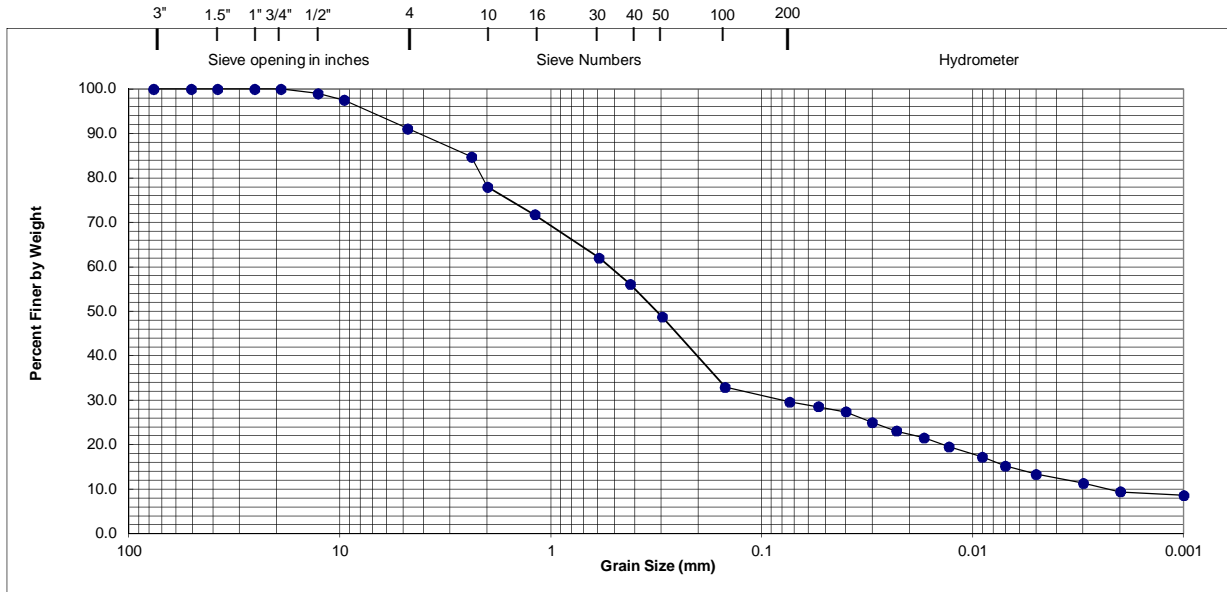




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-2 **Sample No:** SS-3 **Depth (ft):** 19-21
Soil Description: GRAY SANDY LOAM / A-2-4(0)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 22.0% **Sand:** 48.4% **Silt:** 20.2% **Clay:** 9.4%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

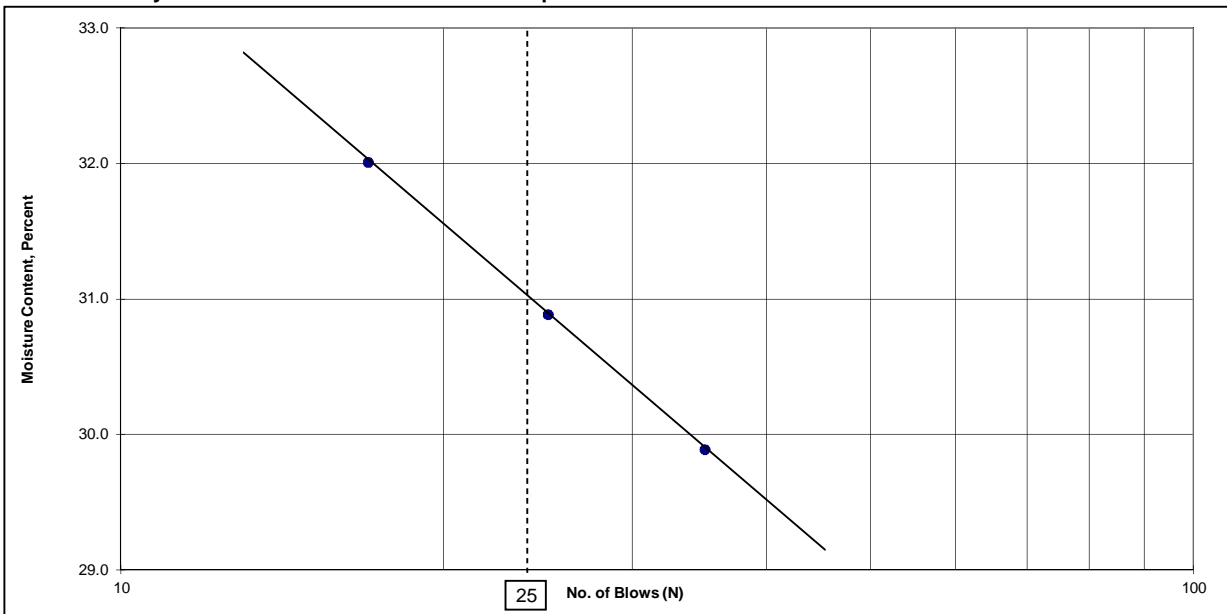
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 43.9

Plasticity Index: 7

Liquid Limit: 31

Plastic Limit: 24

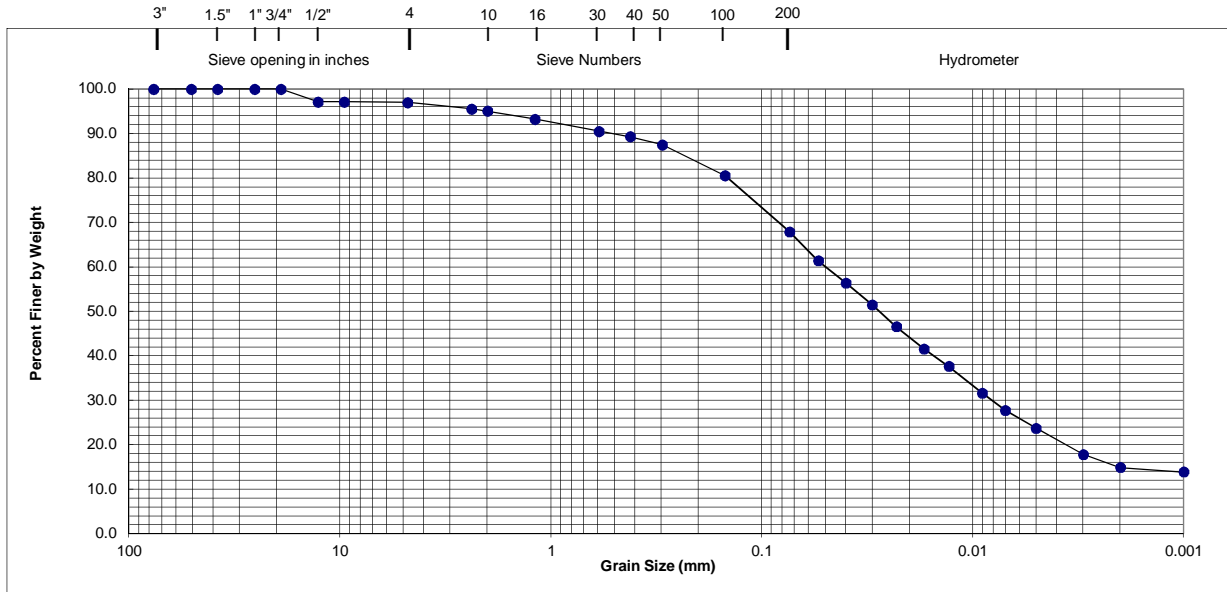




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-2 **Sample No:** SS-11 **Depth (ft):** 21-22.5
Soil Description: GRAY SILTY LOAM / A-4(0)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 4.9% **Sand:** 27.1% **Silt:** 53.1% **Clay:** 14.8%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

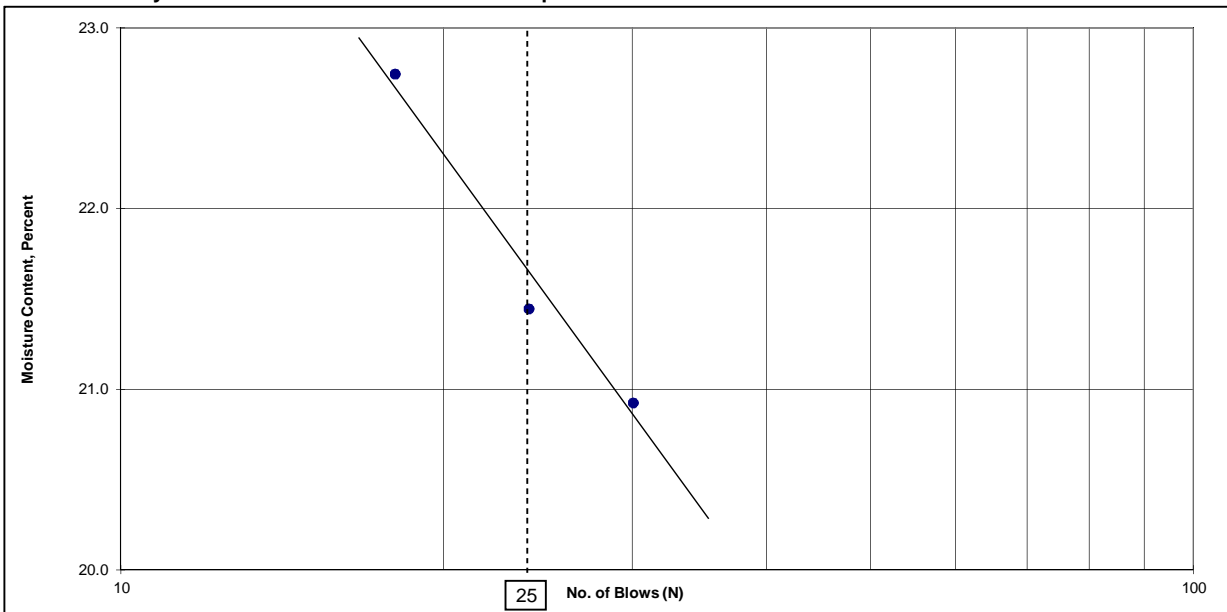
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 10.7

Plasticity Index: 3

Liquid Limit: 22

Plastic Limit: 19

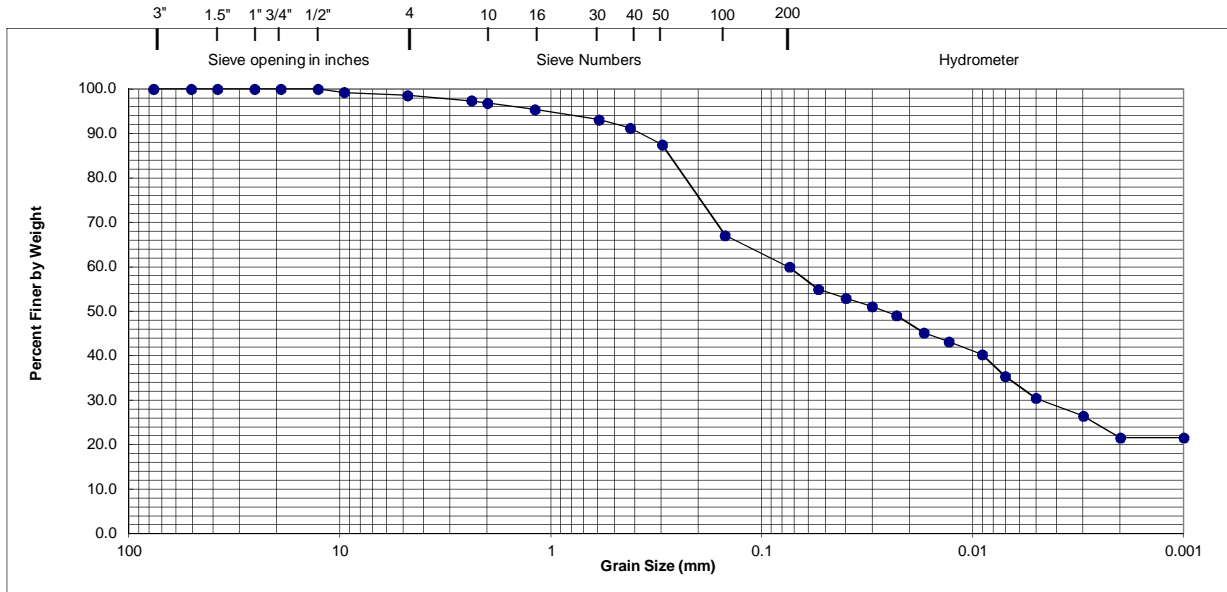




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-3 **Sample No:** SS-2 **Depth (ft):** 3.5-5
Soil Description: BLACK CLAY LOAM / A-6(10)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 3.2% **Sand:** 36.9% **Silt:** 38.3% **Clay:** 21.6%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

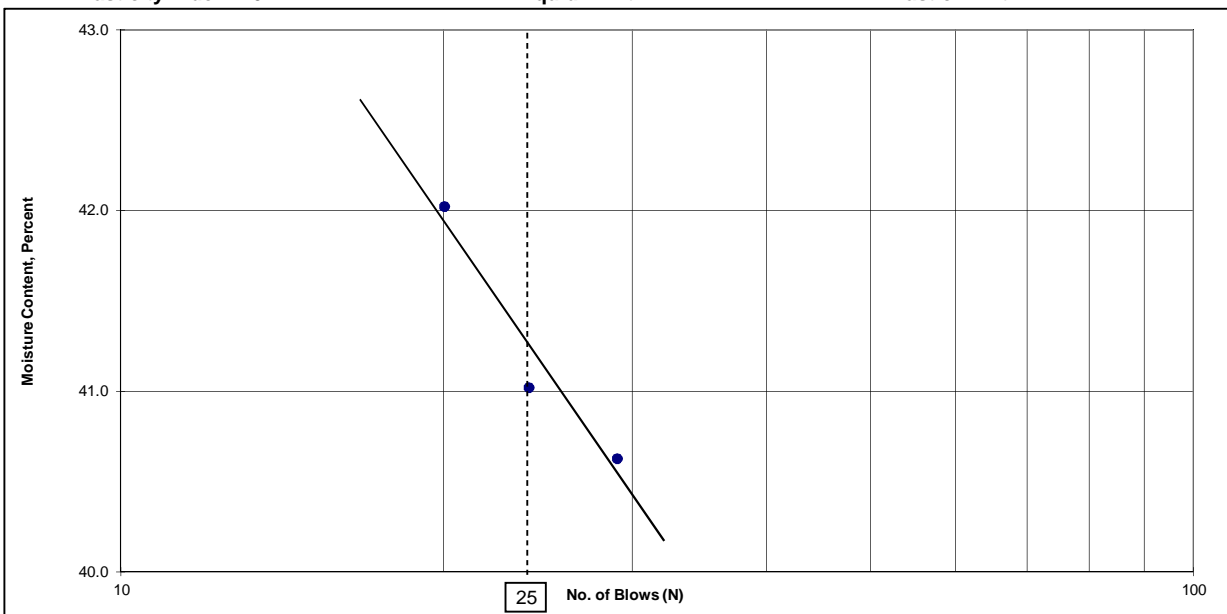
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 8.8

Plasticity Index: 20

Liquid Limit: 41

Plastic Limit: 21

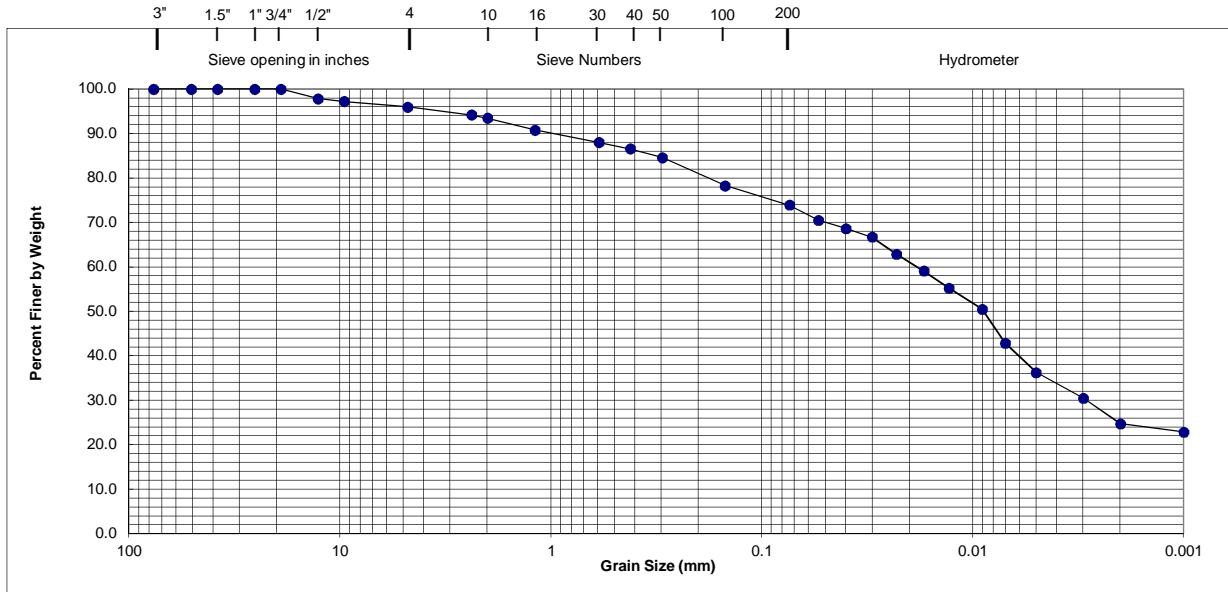




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-3 **Sample No:** SS-3 **Depth (ft):** 5-7
Soil Description: BROWN AND GRAY CLAY LOAM / A-6(8)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)

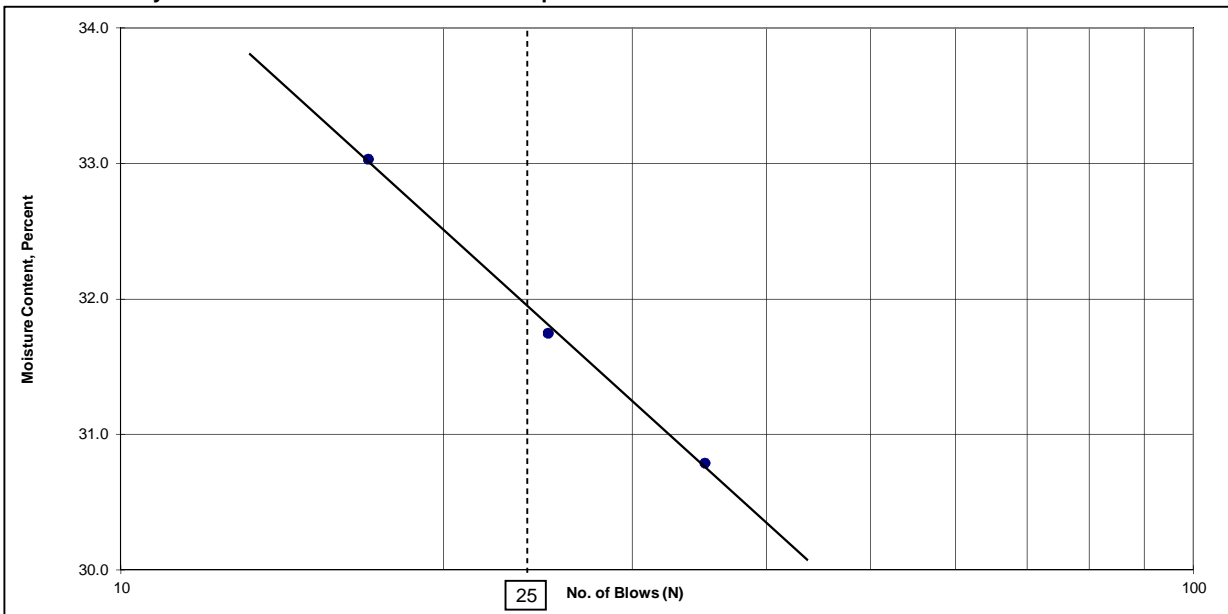


UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 6.5% **Sand:** 19.6% **Silt:** 49.1% **Clay:** 24.8%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

Preparation Method: AIR DRY **Estimated Retained on No. 40 Sieve (%):** 13.4
Plasticity Index: 13 **Liquid Limit:** 32 **Plastic Limit:** 19

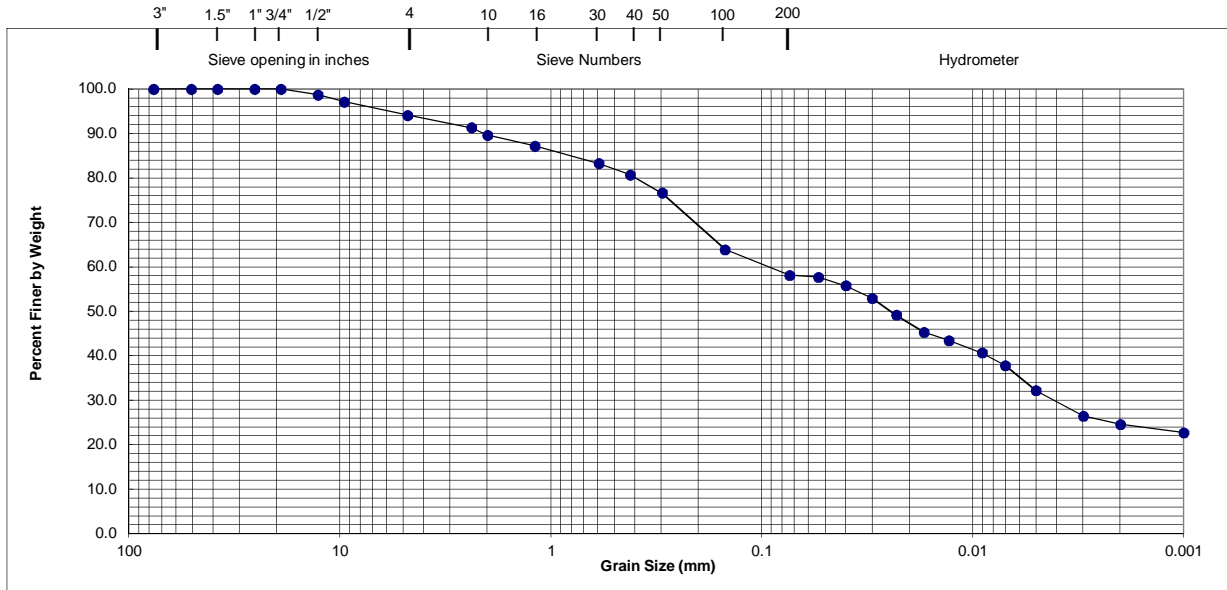




Project: ST. CHARLES ROAD OVER SALT CREEK
Client: V3 COMPANIES OF ILLINOIS LTD.
Location: DEPAGE COUNTY, ILLINOIS
Job No: 1264 **Date:** 12/17/2015

Boring No: B-4 **Sample No:** SS-2 **Depth (ft):** 3.5-5
Soil Description: BLACK AND BROWN CLAY LOAM / A-7-6(11)
 (IDH/AASHTO Classification)

PARTICLE SIZE ANALYSIS OF SOIL (AASHTO T 88)



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY
IDH	GRAVEL		SAND		SILT	CLAY

Gravel: 10.3% **Sand:** 31.6% **Silt:** 33.5% **Clay:** 24.6%

ATTERBERG LIMITS (AASHTO T 89 and T 90)

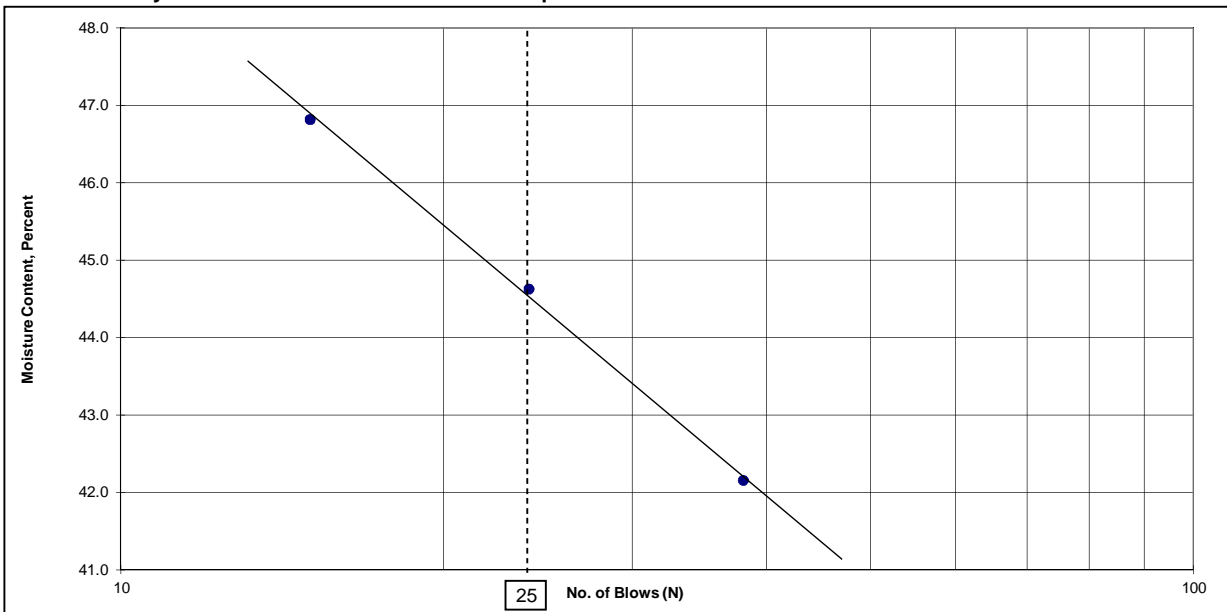
Preparation Method: AIR DRY

Estimated Retained on No. 40 Sieve (%): 19.3

Plasticity Index: 23

Liquid Limit: 45

Plastic Limit: 22



**UNCONFINED COMPRESSIVE STRENGTH
(SOIL)**



EVEREST ENGINEERING COMPANY
 915 WEST LIBERTY DRIVE, WHEATON, IL 60187

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL (AASHTO T 208)

Project: St. Charles Road over Salt Creek
Location: DuPage County, Illinois
Client : V3 Companies of Illinois Ltd.
Boring No. : B-1
Soil Description : Gray Clay Loam
Moisture Content (%) : 17
Dry Density (pcf): 115
Unconfined Compressive Strength (tsf) : 1.50
Strain at Failure: 15.0%

Date: 12/1/2015
Job No.: 1264
Sample No. : ST-8
Sample Depth : 18.5'-20.5'
Test Depth : 19'-19.5'
Initial Diameter (in.): 2.85
Initial Height (in.): 5.75
Height -to-Diameter Ratio: 2.02
Strain Rate (in/min): 0.1

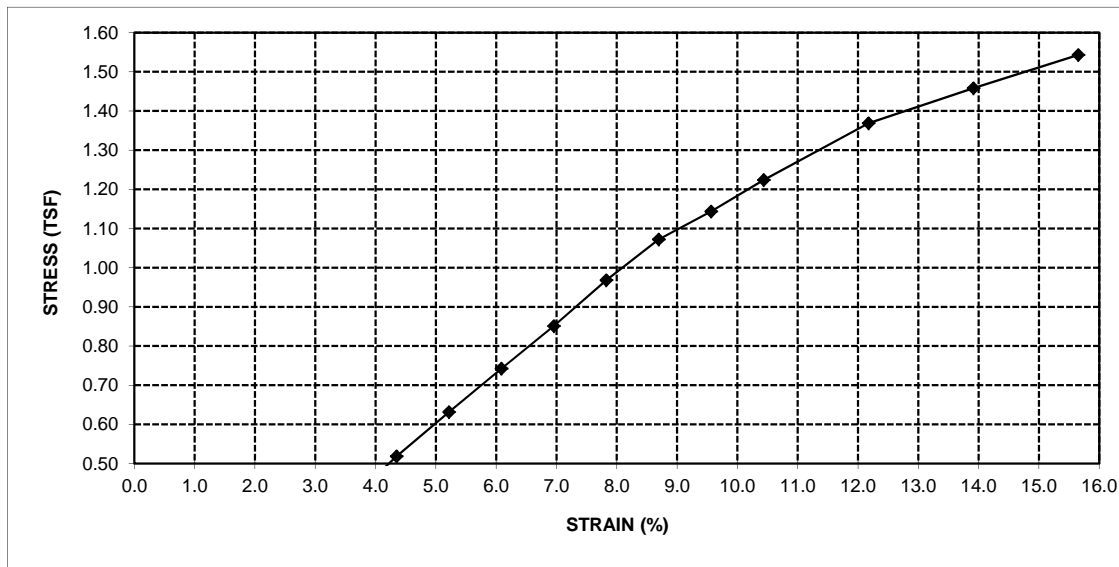
TIME (MINUTES)	LOAD (LB)	CORRECTED AREA (SQ. FT.)	STRAIN (%)	STRESS (TSF)
0.0	0	0.0443	0.0	0.00
1.0	17	0.0451	1.7	0.19
1.5	26	0.0455	2.6	0.29
2.0	36	0.0459	3.5	0.39
2.5	48	0.0463	4.3	0.52
3.0	59	0.0467	5.2	0.63
3.5	70	0.0471	6.1	0.74
4.0	81	0.0476	7.0	0.85
4.5	93	0.0480	7.8	0.97
5.0	104	0.0485	8.7	1.07
5.5	112	0.0490	9.6	1.14
6.0	121	0.0494	10.4	1.22
7.0	138	0.0504	12.2	1.37
8.0	150	0.0514	13.9	1.46
9.0	162	0.0525	15.7	1.54

SKETCH AT FAILURE



TYPE OF FAILURE

- Diagonal:
- Bulge:
- Vertical:





EVEREST ENGINEERING COMPANY
 915 WEST LIBERTY DRIVE, WHEATON, IL 60187

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL (AASHTO T 208)

Project: St. Charles Road over Salt Creek
Location: DuPage County, Illinois
Client : V3 Companies of Illinois Ltd.
Boring No. : B-3
Soil Description : Gray Clay Loam
Moisture Content (%) : 13
Dry Density (pcf): 125
Unconfined Compressive Strength (tsf) : 1.52
Strain at Failure: 15.0%

Date: 12/1/2015
Job No.: 1264
Sample No. : ST-9
Sample Depth : 18.5'-20.5'
Test Depth : 19.5'-20'
Initial Diameter (in.): 2.79
Initial Height (in.): 5.74
Height -to-Diameter Ratio: 2.06
Strain Rate (in/min): 0.1

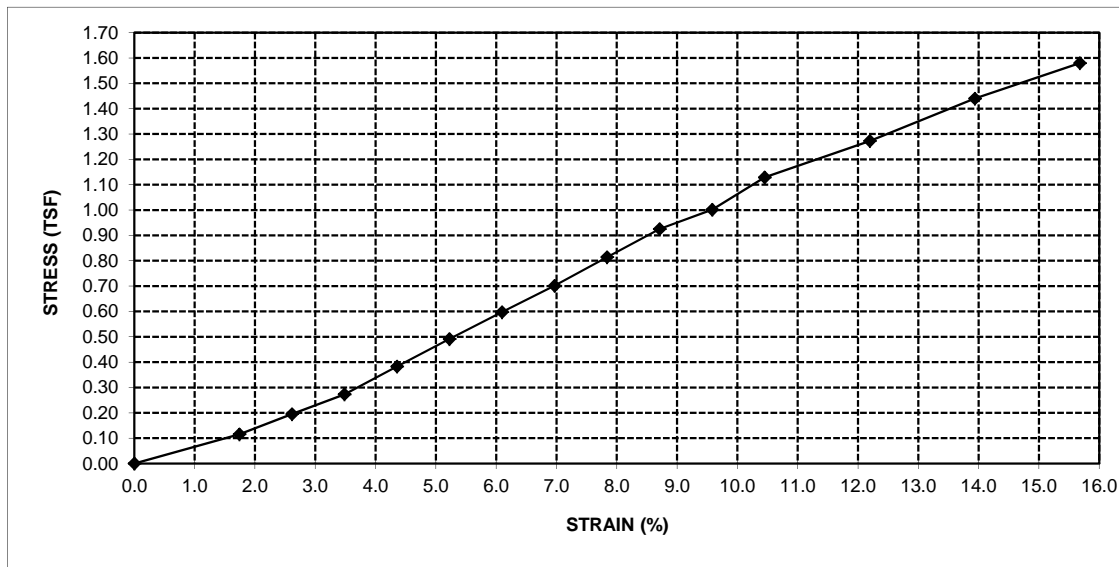
TIME (MINUTES)	LOAD (LB)	CORRECTED AREA (SQ. FT.)	STRAIN (%)	STRESS (TSF)
0.0	0	0.0424	0.0	0.00
1.0	10	0.0432	1.7	0.12
1.5	17	0.0436	2.6	0.20
2.0	24	0.0440	3.5	0.27
2.5	34	0.0444	4.4	0.38
3.0	44	0.0448	5.2	0.49
3.5	54	0.0452	6.1	0.60
4.0	64	0.0456	7.0	0.70
4.5	75	0.0460	7.8	0.81
5.0	86	0.0465	8.7	0.93
5.5	94	0.0469	9.6	1.00
6.0	107	0.0474	10.5	1.13
7.0	123	0.0483	12.2	1.27
8.0	142	0.0493	13.9	1.44
9.0	159	0.0503	15.7	1.58

SKETCH AT FAILURE



TYPE OF FAILURE

- Diagonal:
- Bulge:
- Vertical:



MOISTURE-DENSITY RELATIONS



EVEREST ENGINEERING COMPANY
915 WEST LIBERTY DRIVE, WHEATON, IL 60187

MOISTURE-DENSITY RELATIONS OF SOILS

Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in) Drop
AASHTO T 99 (Method C)

Project: St. Charles Road Bridge over Salt Creek

Location.: DuPage County, Illinois

Client: V3 Companies of Illinois Ltd.

Soil Identification: Brown and Black Clay Loam

Remarks: No material retained on No. 4 sieve

Preparation Method: Air Dry

Rammer Type: Mechanical

Maximum Dry Density (pcf): 114

Date: 12/02/2015

Report No.: NA

Job No.: 1264

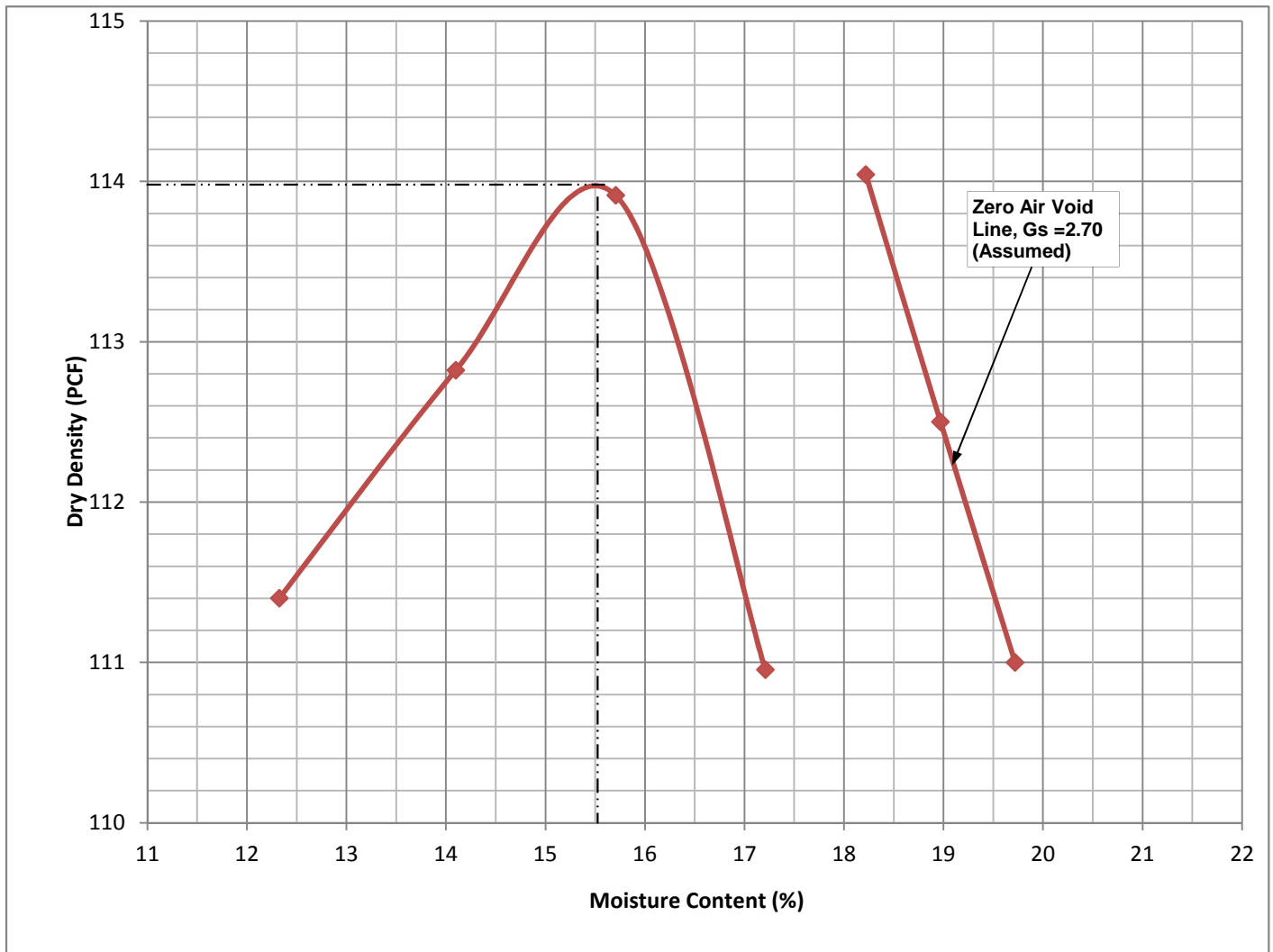
Boring No.: B-1

Depth: 3'-8'

Sample No.: Bag-1

EEC Sample No.: NA

Optimum Moisture Content (%) : 15.5



The test results reported are indicative only of the material tested.

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Rev. 03/00

ILLINOIS BEARING RATIO (IBR)



EVEREST ENGINEERING COMPANY
 915 WEST LIBERTY DRIVE, WHEATON, IL 60187

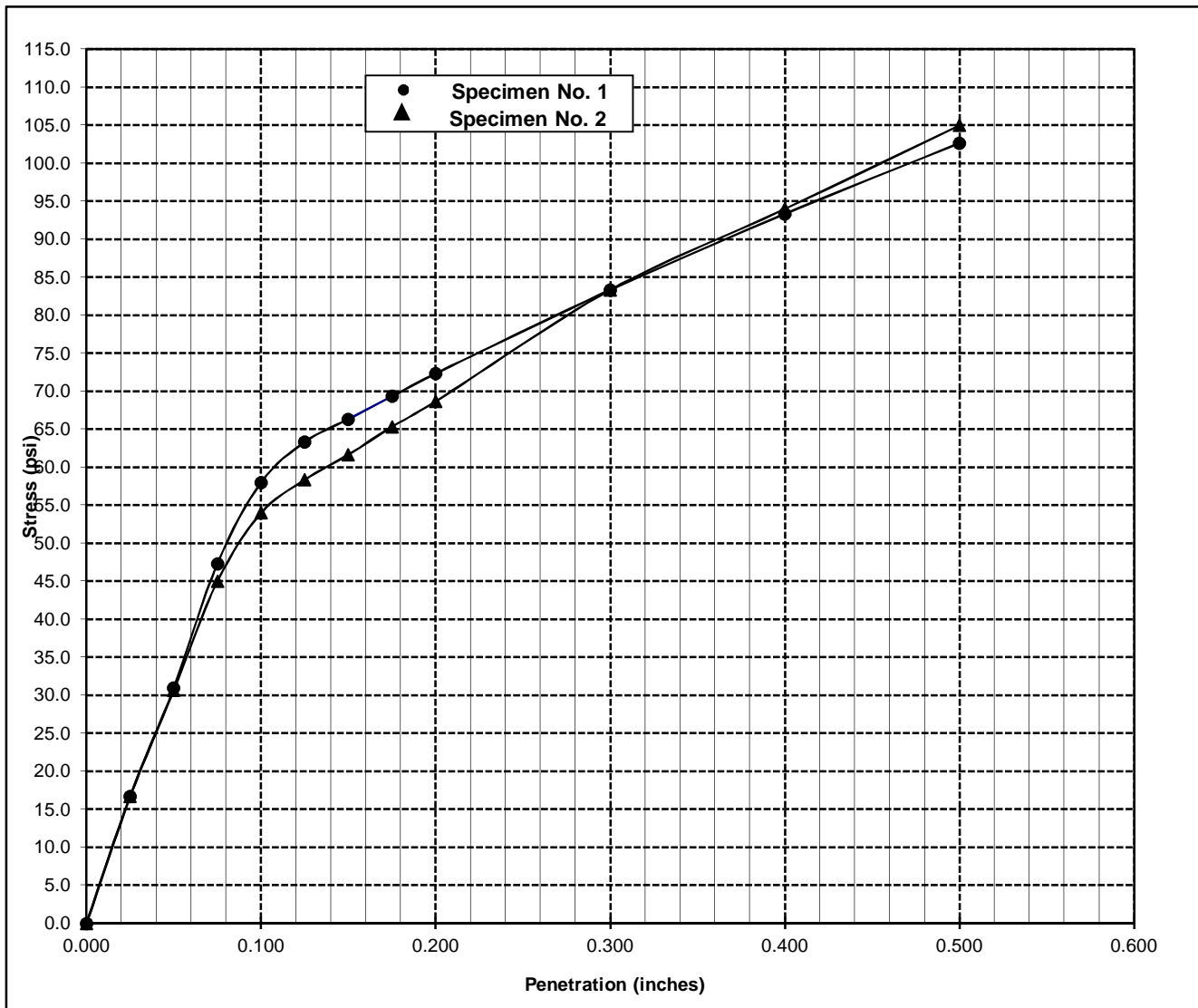
ILLINOIS BEARING RATIO (IBR)

Project: St. Charles Road Bridge over Salt Creek
 Location.: DuPage County, Illinois
 Client: V3 Companies of Illinois Ltd.
 Job No.: 1264
 Soil Identification: Brown and Black Clay Loam

Date: 12/2/2015
 Boring No.: B-1
 Depth: 3'-8"
 Sample No.: Bag-1

	Spec. No. 1	Spec. No. 2
Maximum Dry Density (PCF)	114.0	114.0
Optimum Moisture Content (%)	15.5	15.5
Moisture before soaking (%)	15.9	15.9
Moisture after soaking (%)	17.4	17.5
Expansion (%)	0.7	0.7

Test No.	IBR for 0.10 inch penetrator	IBR for 0.20 inch penetrator
1	5.8	4.8
2	5.4	4.6



PILE DESIGN TABLES

Pile Design Table for West Abutment utilizing Boring #B-1

GROUND SURFACE ELEV. AGAINST PILE DURING DRIVING = ±664.00

BOTTOM OF PILE CAP ELEV. = 664.00

Nominal Resistance Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Resistance Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Resistance Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.179" walls			Steel HP 8 X 36			Steel HP 12 X 53		
40	22	2	8	4	2	11	6	2
58	32	5	26	14	5	38	21	5
60	33	7	35	19	7	55	30	10
64	35	10	36	20	10	73	40	12
77	42	12	45	25	12	76	42	17
106	58	15	49	27	17	98	54	20
107	59	17	62	34	20	113	62	29
110	61	20	72	40	29	117	64	30
248	136	25	75	41	30	120	66	35
171	94	29	79	43	35	129	71	37
176	97	30	83	46	37	175	96	40
220	121	32	117	65	40	191	105	42
208	115	35	126	70	42	224	123	45
228	125	37	151	83	45	418	230	47
254	140	40	286	157	47			
Metal Shell 12"Φ w/.25" walls			Steel HP 10 X 42			Steel HP 12 X 63		
40	22	2	9	5	2	12	7	2
58	32	5	32	18	5	40	22	5
60	33	7	45	25	10	55	30	10
64	35	10	57	32	12	73	40	12
77	42	12	61	34	17	76	42	17
106	58	15	81	44	20	100	55	20
107	59	17	91	50	29	114	63	29
110	61	20	94	52	30	118	65	30
171	94	29	98	54	35	121	67	35
176	97	30	104	57	37	130	71	37
208	115	35	146	80	40	179	99	40
228	125	37	160	88	42	195	107	42
353	194	40	186	103	45	232	127	45
			335	184	47	497	273	47
Metal Shell 14"Φ w/.25" walls			Steel HP 10 X 57			Steel HP 12 X 74		
53	29	2	11	6	2	14	8	2
72	40	7	34	18	5	41	23	5
75	41	10	46	25	10	56	31	10
93	51	12	59	32	12	75	41	12
129	71	15	62	34	17	77	43	17
130	71	17	83	46	20	101	56	20
134	73	20	93	51	29	116	64	29
203	111	29	96	53	30	120	66	30
208	114	30	100	55	35	123	68	35
248	137	35	107	59	37	132	73	37
274	150	37	150	83	40	183	101	40
413	227	40	163	90	42	198	109	42
			195	107	45	238	131	45
			454	250	48	589	324	48
Metal Shell 14"Φ w/.312" walls						Steel HP 12 X 84		
53	29	2				15	8	2
72	40	7				42	23	5
75	41	10				57	31	10
93	51	12				76	42	12
129	71	15				79	43	17
130	71	17				102	56	20
134	73	20				117	65	29
203	111	29				121	67	30
208	114	30				125	69	35
248	137	35				134	74	37
274	150	37				186	102	40
513	282	40				201	111	42
						244	134	45
						664	365	48

Pile Design Table for West Abutment utilizing Boring #B-1

GROUND SURFACE ELEV. AGAINST PILE DURING DRIVING = ±664.00

BOTTOM OF PILE CAP ELEV. = 664.00

Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 14 X 73			Steel HP 14 X 102					
14	8	2	18	10	2			
47	26	5	50	28	5			
67	37	10	68	38	10			
90	50	12	93	51	12			
92	51	17	95	52	17			
118	65	20	122	67	20			
138	76	29	142	78	29			
143	79	30	146	81	30			
145	80	35	149	82	35			
157	86	37	161	88	37			
212	117	40	222	122	40			
231	127	42	240	132	42			
274	151	45	292	160	45			
578	318	47	810	445	48			
Steel HP 14 X 89			Steel HP 14 X 117					
16	9	2	20	11	2			
49	27	5	52	29	5			
67	37	10	69	38	10			
92	50	12	94	52	12			
93	51	17	96	53	17			
120	66	20	124	68	20			
140	77	29	144	79	29			
145	80	30	148	82	30			
147	81	35	151	83	35			
159	87	37	163	90	37			
218	120	40	227	125	40			
236	130	42	244	134	42			
284	156	45	301	166	45			
705	388	48	929	511	49			

Pile Design Table for East Abutment utilizing Boring #B-4

GROUND SURFACE ELEV. AGAINST PILE DURING DRIVING = ±664.00

BOTTOM OF PILE CAP ELEV. = 664.00

Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.179" walls			Steel HP 8 X 36			Steel HP 12 X 63		
10	5	2	2	1	2	3	2	2
16	9	5	4	2	5	6	3	5
40	22	8	13	7	8	20	11	8
45	25	15	16	9	15	25	14	10
67	37	20	20	11	17	25	14	15
131	72	22	24	13	20	33	18	17
158	87	31	36	20	22	37	20	20
200	110	36	41	23	31	55	30	22
254	140	41	50	28	36	66	36	26
			62	34	41	67	37	31
			89	49	46	81	44	36
			286	157	49	95	52	41
						138	76	46
						497	273	49
Metal Shell 12"Φ w/.25" walls			Steel HP 10 X 42			Steel HP 12 X 74		
10	5	2	2	1	2	3	2	2
16	9	5	5	2	5	6	3	5
40	22	8	16	9	8	20	11	8
45	25	15	20	11	10	26	14	15
67	37	20	20	11	15	34	18	17
131	72	22	27	15	17	38	21	20
158	87	31	30	17	20	56	31	22
200	110	36	45	25	22	68	37	26
319	175	41	53	29	31	69	38	31
353	194	46	66	36	36	82	45	36
			77	42	41	97	54	41
			109	60	46	144	79	46
			335	184	48	589	324	50
Metal Shell 14"Φ w/.25" walls			Steel HP 10 X 57			Steel HP 12 X 84		
11	6	2	3	1	2	3	2	2
21	11	5	5	3	5	7	4	5
51	28	8	17	9	8	21	11	8
53	29	15	20	11	15	26	14	15
81	45	20	27	15	17	34	19	17
165	91	22	31	17	20	39	21	20
192	105	31	46	25	22	57	31	22
247	136	36	54	30	31	69	38	26
404	222	41	67	37	36	70	38	31
413	227	46	80	44	41	83	46	36
			117	64	46	99	55	41
			454	250	49	150	82	46
						664	365	50
Metal Shell 14"Φ w/.312" walls			Steel HP 12 X 53					
11	6	2	3	2	2			
21	11	5	5	3	5			
51	28	8	19	11	8			
53	29	15	24	13	10			
81	45	20	25	14	15			
165	91	22	32	18	17			
192	105	31	36	20	20			
247	136	36	53	29	22			
404	222	41	64	35	26			
513	282	46	67	37	31			
			79	43	36			
			92	51	41			
			131	72	46			
			418	230	48			

Pile Design Table for East Abutment utilizing Boring #B-4

GROUND SURFACE ELEV. AGAINST PILE DURING DRIVING = ±664.00

BOTTOM OF PILE CAP ELEV. = 664.00

Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 14 X 73			Steel HP 14 X 102					
3	2	2	4	2	2			
7	4	5	8	4	5			
24	13	8	25	13	8			
29	16	10	32	18	15			
31	17	15	41	22	17			
39	22	17	46	25	20			
44	24	20	68	37	22			
65	36	22	83	45	26			
78	43	26	85	47	31			
83	46	31	99	54	36			
96	53	36	119	65	41			
113	62	41	179	99	46			
163	90	46	810	445	50			
578	318	49						
Steel HP 14 X 89			Steel HP 14 X 117					
4	2	2	4	2	2			
8	4	5	9	5	5			
24	13	8	25	14	8			
31	17	10	32	18	15			
32	17	15	41	23	17			
40	22	17	47	26	20			
45	25	20	69	38	22			
67	37	22	85	47	26			
81	44	26	87	48	31			
84	46	31	100	55	36			
97	54	36	122	67	41			
116	64	41	188	103	46			
172	95	46	929	511	50			
705	388	50						

Pile Design Table for West Pier utilizing Boring #B-2

GROUND SURFACE ELEV. AGAINST PILE DURING DRIVING = ±651.00

BOTTOM OF PILE CAP ELEV. = 651.00

Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.179" walls			Steel HP 10 X 57			Steel HP 14 X 73		
25	14	3	2	1	3	3	1	3
114	63	6	10	6	6	11	6	6
132	72	8	16	9	8	21	12	8
177	97	21	26	14	11	35	19	11
254	140	27	33	18	12	45	25	12
			45	25	16	63	35	16
Metal Shell 12"Φ w/.25" walls			47	26	23	71	39	19
25	14	3	77	42	27	73	40	21
114	63	6	97	53	32	73	40	23
132	72	8	129	71	35	109	60	27
177	97	23	454	250	38	137	75	32
346	190	27				179	99	35
353	194	32	Steel HP 12 X 53			578	318	38
			2	1	3	Steel HP 14 X 89		
Metal Shell 14"Φ w/.25" walls			9	5	6	3	2	3
30	16	3	17	9	8	12	7	6
133	73	6	28	15	11	23	13	8
173	95	8	36	20	12	38	21	11
208	114	23	51	28	16	48	27	12
413	227	27	58	32	19	66	36	16
			59	32	23	73	40	19
Metal Shell 14"Φ w/.312" walls			89	49	27	74	41	23
30	16	3	112	62	32	112	62	27
133	73	6	145	80	35	141	78	32
173	95	8	418	230	37	189	104	35
208	114	23				705	388	38
435	239	27	Steel HP 12 X 63			Steel HP 14 X 102		
513	282	32	2	1	3	3	2	3
			10	6	6	13	7	6
Steel HP 8 X 36			18	10	8	25	13	8
2	1	3	30	16	11	41	22	11
8	4	6	38	21	12	51	28	12
11	6	8	53	29	16	68	38	16
19	10	11	59	33	23	75	41	19
24	13	12	92	50	27	75	41	21
34	19	16	116	64	32	75	41	23
36	20	23	152	84	35	115	63	27
60	33	27	497	273	38	144	79	32
75	42	32				196	108	35
98	54	35	Steel HP 12 X 74			810	445	39
286	157	37	3	1	3	Steel HP 14 X 117		
			11	6	6	4	2	3
Steel HP 10 X 42			19	11	8	15	8	6
2	1	3	32	18	11	26	14	8
8	4	6	40	22	12	44	24	11
14	8	8	55	30	16	54	30	12
23	13	11	60	33	23	71	39	16
30	16	12	94	52	27	76	42	23
42	23	16	118	65	32	118	65	27
46	25	23	158	87	35	148	81	32
74	41	27	589	324	38	205	113	35
94	52	32				929	511	39
121	66	35	Steel HP 12 X 84					
335	184	37	3	2	3			
			12	7	6			
			20	11	8			
			34	19	11			
			42	23	12			
			57	31	16			
			61	34	23			
			96	53	27			
			121	66	32			
			164	90	35			
			664	365	39			

Pile Design Table for East Pier utilizing Boring #B-3

GROUND SURFACE ELEV. AGAINST PILE DURING DRIVING = ±651.00

BOTTOM OF PILE CAP ELEV. = 651.00

Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)	Nominal Required Bearing (Kips)	Bearing Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.179" walls			Steel HP 10 X 57			Steel HP 14 X 73		
18	10	6	10	6	4	14	8	4
31	17	9	11	6	6	16	9	6
104	57	19	18	10	9	26	14	9
143	79	24	33	18	11	47	26	11
254	140	28	37	21	19	56	31	19
			50	27	24	71	39	24
Metal Shell 12"Φ w/.25" walls			66	36	28	91	50	28
18	10	6	99	54	33	140	77	33
31	17	9	135	74	37	189	104	37
104	57	19	454	250	40	578	318	40
143	79	24						
353	194	28	Steel HP 12 X 53			Steel HP 14 X 89		
			12	7	4	15	8	4
Metal Shell 14"Φ w/.25" walls			13	7	6	17	9	6
22	12	6	21	12	9	27	15	9
39	21	9	38	21	11	49	27	11
125	69	19	46	25	19	57	31	19
177	98	24	58	32	24	72	40	24
413	227	28	74	41	28	96	53	28
			115	63	33	144	79	33
Metal Shell 14"Φ w/.312" walls			153	84	37	198	109	37
22	12	6	418	230	39	705	388	40
39	21	9						
125	69	19	Steel HP 12 X 63			Steel HP 14 X 102		
177	98	24	12	7	4	15	8	4
461	254	28	14	8	6	17	9	6
513	282	33	22	12	9	27	15	9
			40	22	11	50	28	11
Steel HP 8 X 36			46	25	19	57	32	19
8	5	4	60	33	24	73	40	24
9	5	6	77	43	28	100	55	28
14	8	9	118	65	33	147	81	33
26	14	11	160	88	37	205	113	37
29	16	19	497	273	40	810	445	41
38	21	24						
50	27	28	Steel HP 12 X 74			Steel HP 14 X 117		
77	42	33	12	7	4	15	8	4
103	57	37	14	8	6	17	9	6
286	157	39	22	12	9	28	16	9
			41	23	11	52	29	11
Steel HP 10 X 42			47	26	19	58	32	19
10	6	4	60	33	24	74	41	24
11	6	6	81	44	28	104	57	28
18	10	9	121	66	33	151	83	33
32	17	11	166	91	37	214	118	37
37	20	19	589	324	40	929	511	41
49	27	24						
61	34	28	Steel HP 12 X 84			Steel HP 14 X 117		
96	53	33	13	7	4	15	8	4
127	70	37	14	8	6	17	9	6
335	184	39	23	13	9	28	16	9
			42	23	11	52	29	11
			47	26	19	58	32	19
			61	34	24	74	41	24
			83	46	28	104	57	28
			123	68	33	151	83	33
			172	95	37	214	118	37
			664	365	41	929	511	41



Underwater Inspection Bridge No. 022-6950

December 11, 2014

Prepared for:



Prepared by:

COLLINS
ENGINEERS INC.

123 North Wacker Drive, Suite 900
Chicago, Illinois 60606
312.704.9300 • www.collinsengr.com

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Figure 4: West Pier – Plan, Elevations, and Inspection Notes

Figure 5: East Pier – Plan, Elevations, and Inspection Notes

APPENDIX B – PHOTOGRAPHS

Photograph 1: Overall View of Bridge No. 022-6950, Looking North.

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Photograph 3: View of the West Shoreline Upstream of the Bridge, Looking West.

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EXECUTIVE SUMMARY

- Project:** Underwater Inspection of St. Charles Road Bridge over Salt Creek in Villa Park
- Purpose of Project:** To perform a visual and tactile inspection of the below water surfaces of the submerged substructure units.
- Inspection Team:** Team Leader – Piotr Sawulski, P.E. – Collins Engineers, Inc.
Team Member – Michael Spencer, E.I.T. – Collins Engineers, Inc.
Team Member – Jacob Green – Collins Engineers, Inc.
- Inspection Date(s):** December 11, 2014

Summary of Findings:

- Partial footing exposure at the West Pier with up to 0.8 foot of vertical exposure.
- Partial footing exposure at the East Pier with up to 2.6 feet of vertical exposure.
- Random cracking with efflorescence, scaling and areas of rust staining on the West and East Pier walls.
- Timber debris accumulation at the upstream end of the West Pier.
- Scour depression downstream of the West Pier.

Summary of Recommendations:

- Remove timber drift accumulation.
- Monitor footing exposure at the West and East Piers and consider implementing scour countermeasures if extent of exposure is found to be increasing.
- Monitor scour depression downstream of the West Pier.
- Monitor cracking and scaling at the West and East Piers.
- Re-inspect underwater within 60 months.

1.0 INTRODUCTION

1.1 Purpose and Scope

This report presents the findings of the underwater investigation performed for the submerged substructure units of Bridge No. 022-6950 in the Village of Villa Park, Illinois. The investigation was conducted by Collins Engineers, Inc. (Collins) on December 11, 2014. The primary purpose of the investigation was to determine the condition of the substructure components located in the water at the time of the inspection from the waterline to the channel bottom. In addition, a brief inspection was made of adjacent substructure areas that could be submerged during periods of high water.

The following report includes a description of the structure, the method of investigation, a description of existing conditions, and an evaluation and recommendations based on the conditions.

1.2 General Description of the Structure

The bridge is a three span, precast, prestressed concrete deck beam structure supported by two abutments and two intermediate piers. The piers are comprised of reinforced concrete walls founded on concrete footings supported on timber piles. Design plans dated 1977 and field observations indicate that as part of the bridge widening, approximately 20-foot-long and 12-foot-long walls section were added to north and south ends of both piers, respectively. The pier extensions are supported on concrete spread footings founded on natural streambed material (silty clay and sand according to available boring logs). Additionally, both piers were increased in height by approximately 5 feet. The substructure units are labeled as West Abutment, West and East Piers, and East Abutment, from west to east.

1.3 Method of Investigation

Prior to the inspection, Collins obtained and reviewed the available bridge plans and previous inspection reports. A three-person team consisting of one professional engineer-diver and two engineer-divers conducted the underwater inspection. The inspection was conducted using commercial scuba diving equipment. During the inspection, the diver entered the water from the shore while an engineer on the shore recorded the inspection notes.

The underwater inspection consisted of a visual and tactile examination of the accessible surfaces of the submerged substructure units from the waterline to the channel bottom with particular attention given to any areas of deterioration or apparent distress. The type of channel bottom material, presence and extent of scour, presence and extent of riprap, presence and extent of debris, and the location of any structural defects were noted. In addition, the conditions of the shorelines in the vicinity of the structure were noted. Photographs were taken to document general conditions and observed deficiencies.

The channel bottom depths were obtained using an incremental sounding pole. The channel bottom depths were recorded along the bridge fascias, 100 feet upstream and downstream of the bridge and at eighth points along the faces of each pier. The waterline was referenced to a known elevation on the structure.

2.0 EXISTING CONDITIONS

2.1 Substructure Conditions

The **West Pier** was generally in satisfactory condition below the waterline with no defects of immediate structural significance observed. The **footing of the pier was partially exposed around the upstream end** (spread footing supported newer portion of pier wall) and along the west side (pile supported original construction). The maximum vertical face exposure of the spread footing was **0.5 foot**, while the maximum exposure along the pile supported portion of the pier footing was 0.8 foot. The accessible portions of the top of the footing were mostly rough, irregular and often covered with construction debris (concrete rubble). Left in place formwork, consisting of vertical timber boards, was present along the majority of original pier construction and extended up to 12 inches above the top of the footing. The concrete of the pier wall was generally smooth and sound, with no significant deterioration. However, a 5-foot-high section of pier wall extension typically exhibited widespread vertical hairline cracking with efflorescence and areas of rust staining. The cold construction joint at the interface of original and newer pier construction typically had cracking extending along the full height of the pier wall, with occasional areas of minor concrete section losses. Additionally, a 1-foot-high band of concrete scaling was noted around the waterline, on the original portion of pier wall. Outside of the abovementioned typical pier deterioration, three cracks measuring 1/16 inch to 1/8 inch wide were noted on the east face of the pier wall. A moderate accumulation of timber drift, extending up to 2 feet above the waterline, was noted at the upstream nose of the pier. Refer to Photographs 9 through 15 for views of the typical West Pier conditions and specific defects identified during the inspection.

The **East Pier** was generally in satisfactory condition below the waterline with no defects of immediate structural significance observed. The footing of the pier was partially exposed along the west side of the pile supported original footing construction, with the **maximum vertical exposure of up to 2.6 feet near** the pier's centerline. No undermining of the footing was evident due to left in place original timber formwork, typically extending from the channel bottom up to 12 inches above the top of the footing. The accessible portions of the footing were mostly rough, irregular and often covered with construction debris (concrete rubble). The concrete of the pier wall was generally smooth and sound, with no significant deterioration. However, a 5-foot-high section of pier wall extension typically exhibited widespread vertical hairline cracking with efflorescence and areas of rust staining. The cold construction joint at the interface of original and newer pier construction typically had cracking extending along full height of the pier wall, with occasional areas of minor concrete section losses. Additionally, a 1-foot-high band of concrete scaling was noted around the waterline on the original portion of pier wall. Refer to Photographs 16 through 18 for views of the typical East Pier conditions and a specific defect identified during the inspection.

The West Slope Wall was generally in good condition and appeared stable with no evidence of significant differential settlement. The toe of the slope wall was typically exposed along majority of the wall, with the maximum vertical exposure of 1 foot at the downstream end.

2.2 Waterway Conditions

At the time of inspection, the waterline was approximately 11.2 feet below the top of the pier cap at the downstream nose of the West Pier. This corresponds to a waterline elevation of 658.4 based on available bridge plans dated 1977. At the time of inspection, the West Pier and East Pier were located in the waterway and the Salt Creek was flowing north to south at approximately 1 foot per second. **The channel bottom in the vicinity of both piers consisted of sand and gravel allowing up to 6 inches of probe rod penetration. Soft silty infill material, allowing up to 12 inches of probe rod penetration, was noted downstream of the south end of the West Pier and around the upstream end of the East Pier. Localized channel bottom degradation was evident along the west face of the West Pier, as well as around the upstream end of the East Pier, with up to approximately 3 foot drop in channel bottom elevation. A 10-foot-diameter, up to 4-foot-deep, scour depression was also noted downstream of the south bridge fascia, between the slope wall and the West Pier.** Refer to Figure 2 in Appendix A for the waterway configuration and sounding plan, and Figure 3 for channel cross sections and general elevation of the bridge.

2.3 Shoreline Conditions

The west shoreline, from the bridge fascia to approximately 20 feet upstream, was armored with riprap, measuring up to 1 foot in diameter, and lightly vegetated. Beyond, the shoreline consisted of up to 10 feet high, cut banks with exposed tree roots. The west shoreline, downstream of the bridge, consisted of riprap and what appeared to be roughly poured sections of concrete embankment. The east shoreline, upstream and downstream of the bridge, consisted of moderately vegetated embankments with up to 5 feet high steep cut banks and exposed tree roots. Riprap, measuring 10 inches in diameter and smaller, was armoring the east shoreline around the downstream end of the East Pier. Refer to Photographs 3 through 8 and 19 and 20 in Appendix B for views of the east and west shorelines and slope walls at the abutments.

3.0 EVALUATION AND RECOMMENDATIONS

Based on the underwater inspection findings, Bridge No. 022-6950 can be considered to be in generally satisfactory condition and overall structurally sound. The footing exposure noted at the West Pier, as well as the footing exposure and possible undermining of the pile supported portion of the East Pier, which are likely related to the current angle of attack of the river's flow at the bridge, which is to the southeast at a 30 to 45 degree angle to the longitudinal axis of the bridge piers, are not a significant concern at this time given the current extent of the exposures. However, further localized channel bottom degradation, especially around the spread footing supported portions of the substructure units, could eventually pose a threat to the substructure stability of those units. As a result, it is recommended that the extent of exposure at both piers be closely monitored during future inspections and if found to be increasing, consideration be given to implementing scour countermeasures in the form of placement of properly sized and graded riprap at both substructure units to prevent further localized channel bottom scouring. In regard to the scour depression just south of the structure, which is believed to be caused by water from a storm sewer located near the south end of the concrete slope wall, given its location relative to the structure, no remedial actions are recommended at this time.

The timber debris accumulation at the West Pier is not believed to be significantly affecting the channel flow; however, it should be removed at this time to reduce the likelihood of channel bottom degradation resulting from obstructed flow and to limit further debris accumulation.

The cracking and scaling at the East and West Piers are not structural concerns at this time given their magnitude compared to the overall pier size, and as a result, no repairs are recommended. These defects should be monitored during future inspections to ensure that they are not enlarging and that no reinforcing steel becomes exposed. If the areas are observed to be enlarging or reinforcing steel becomes exposed, it may be necessary to repair the areas at that time. Repairs would include removal of concrete to a minimum of 1 inch behind the reinforcing steel, cleaning and replacing reinforcing steel as required, and placing concrete designed to provide high durability with low permeability.

In accordance with the National Bridge Inspection Standards, it is recommended that the subsequent underwater inspection of Bridge No. 022-6950 be performed within 60 months.

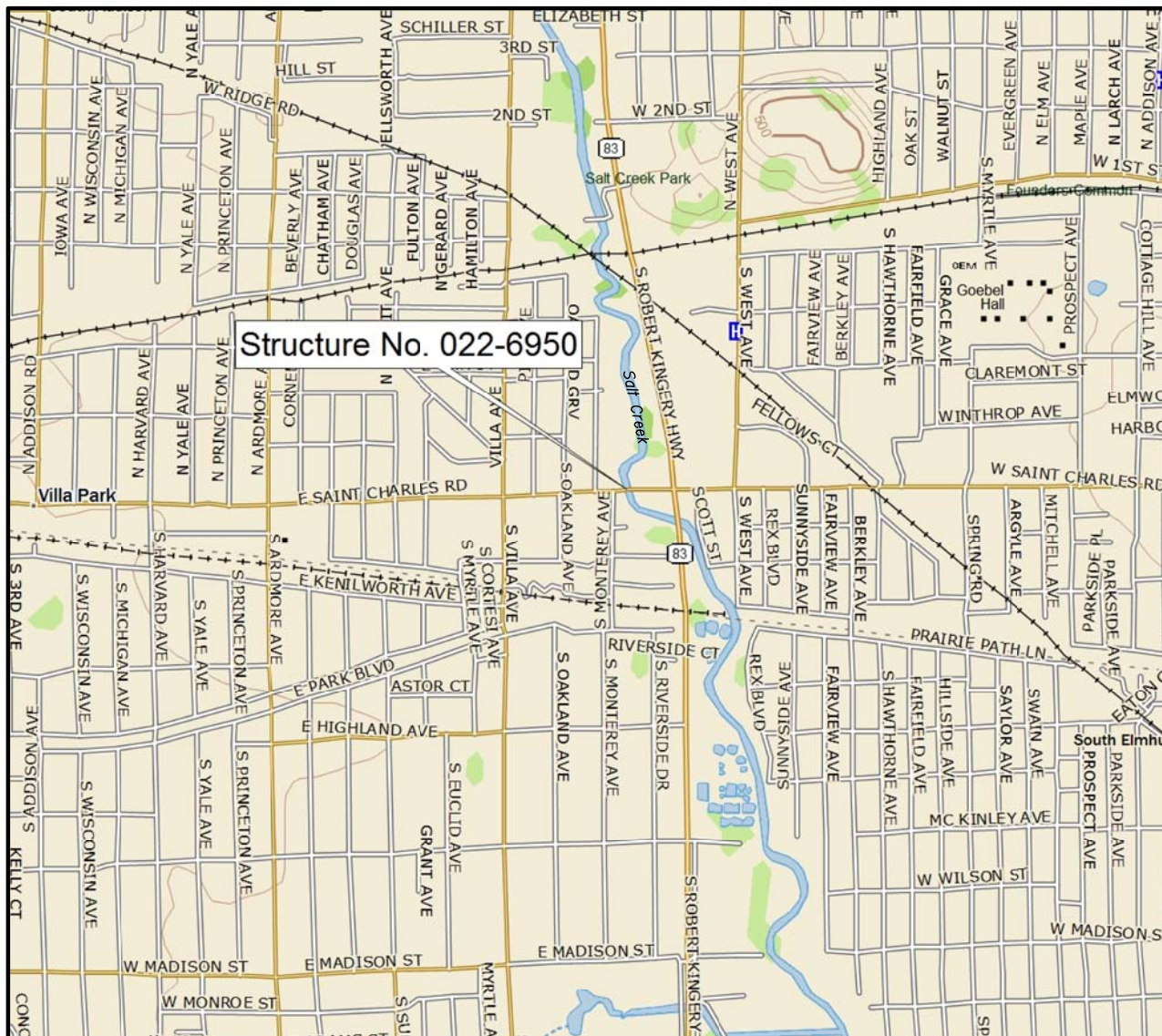
Respectfully submitted,
COLLINS ENGINEERS, INC.

Piotr Sawulski, P.E.
Project Manager

Originated by:
Jacob P. Green

Engineer-Diver:
Piotr Sawulski, P.E.

APPENDIX A – FIGURES



VILLAGE OF VILLA PARK

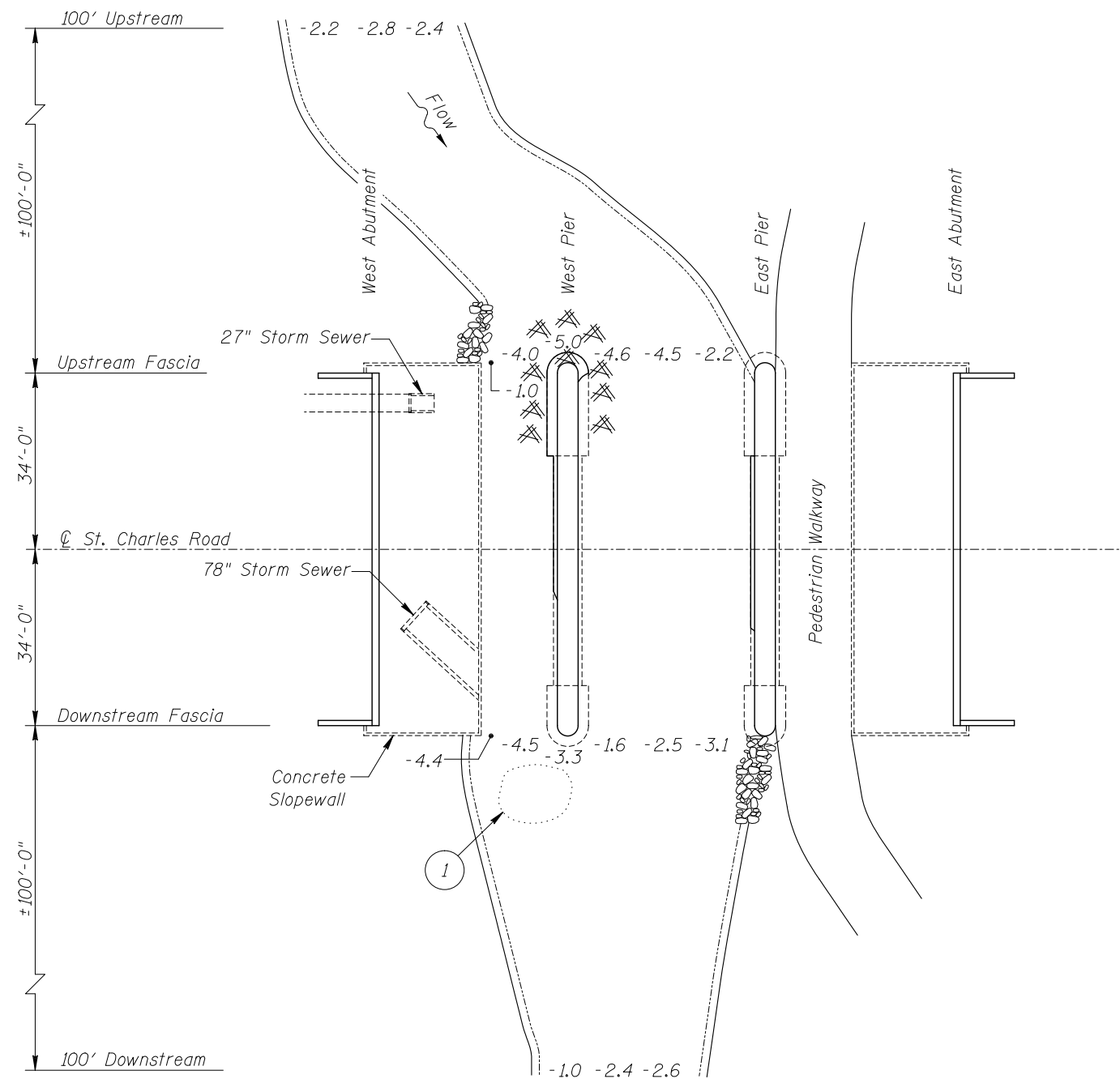
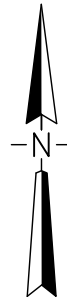
ST. CHARLES ROAD OVER
SALT CREEK
STRUCTURE NUMBER: 022-6950

LOCATION MAP

Drawn By: PRH
Checked By: PS
Code: 87776950

COLLINS ENGINEERS INC.
123 North Wacker Drive
Suite 900
Chicago, IL 60606
(312) 704-9300
www.collinsengr.com
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

Date: DEC., 2014
Scale: 1"=1/2 Mile
Figure No.: 1



PLAN

INSPECTION NOTES:

- ① Four foot deep scour depression measuring approximately 10 feet in diameter.

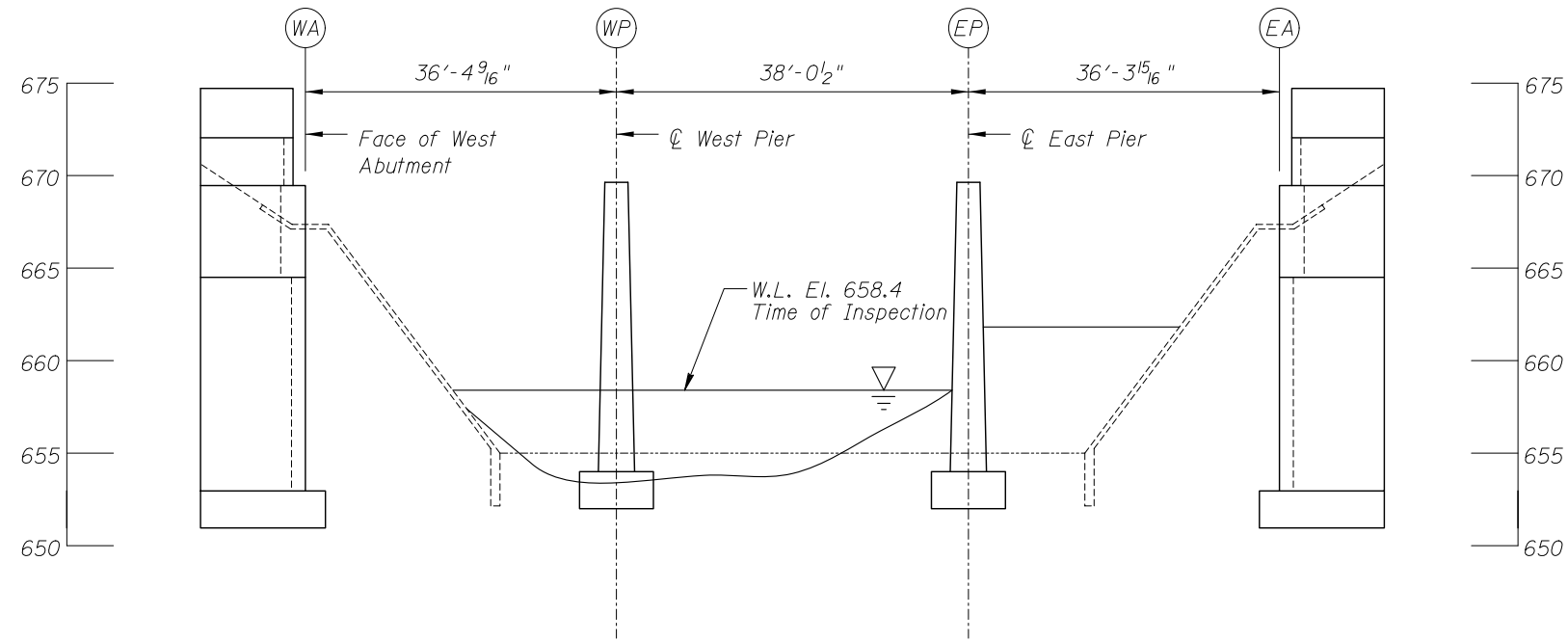
GENERAL NOTES:

1. West Pier and East Pier were inspected underwater.
2. At the time of inspection on December 11, 2014, the waterline was located approximately 11.2 feet below the top of the pier cap at the downstream nose of the West Pier. This corresponds to a waterline elevation of 658.4 feet based on the bridge plans dated 1977.
3. Soundings indicate the channel bottom elevation at the time of inspection and are measured in feet.
4. These figures were developed from field observations and the bridge plans.

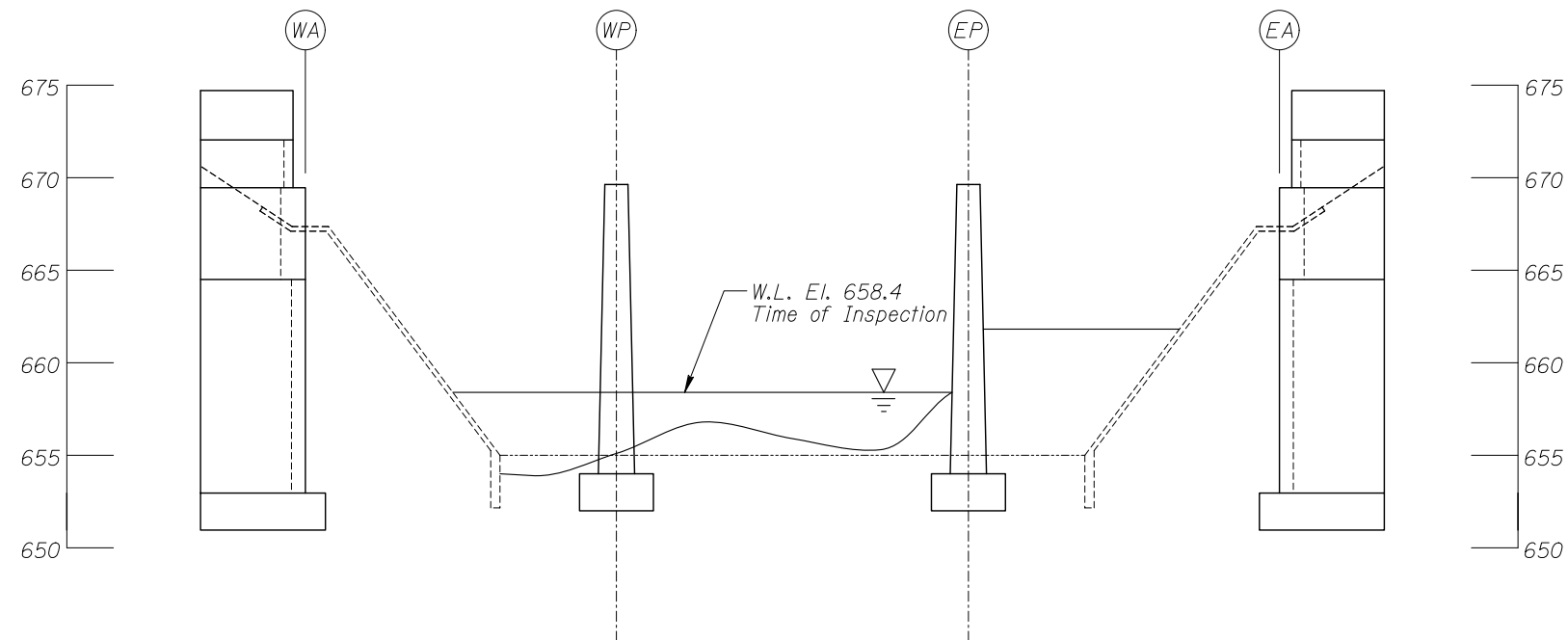
LEGEND:

- 1.0 Channel Cross Section Depth from Waterline
- Shoreline on 12/11/14 (W/L El. 658.4)
- Timber Debris
- Riprap

VILLAGE OF VILLA PARK		
ST. CHARLES ROAD OVER SALT CREEK STRUCTURE NUMBER: 022-6950		
SOUNDING PLAN		
Drawn By: PRH	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-00993</small>	Date: DEC., 2014
Checked By: PS		Scale: 1"=30'
Code: 87776950		Figure No.: 2



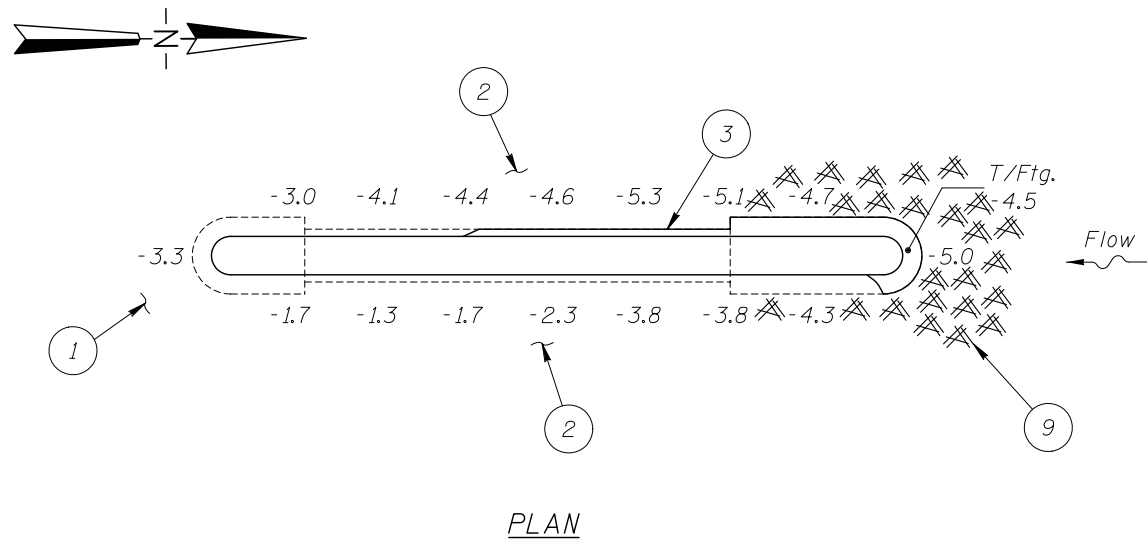
UPSTREAM FASCIA CHANNEL CROSS SECTION
Scale: H:1"=20" V:1'=10'



DOWNSTREAM FASCIA CHANNEL CROSS SECTION
Scale: H:1"=20" V:1'=10'

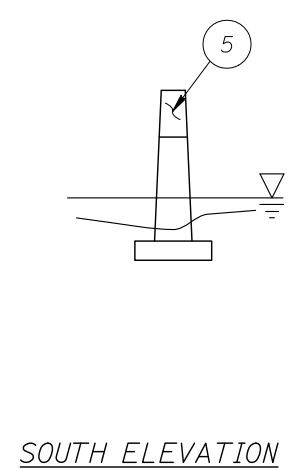
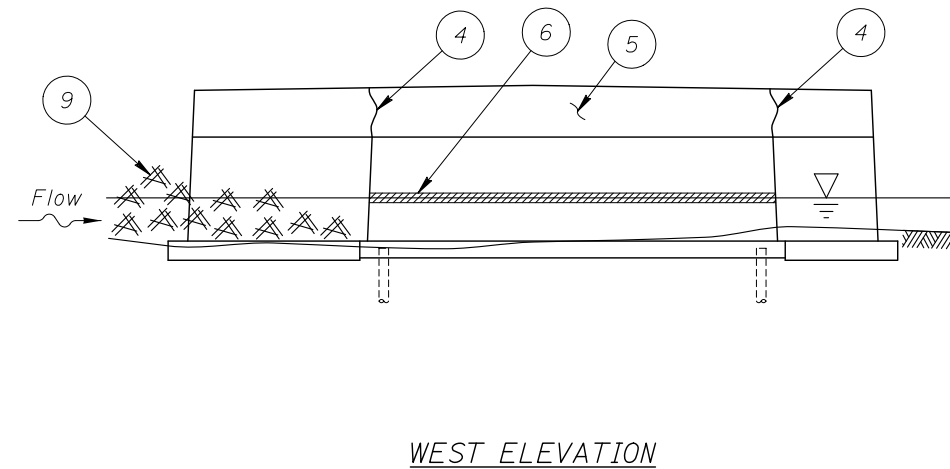
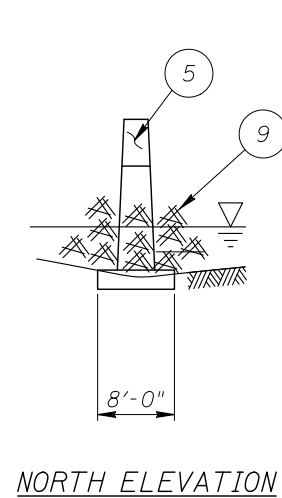
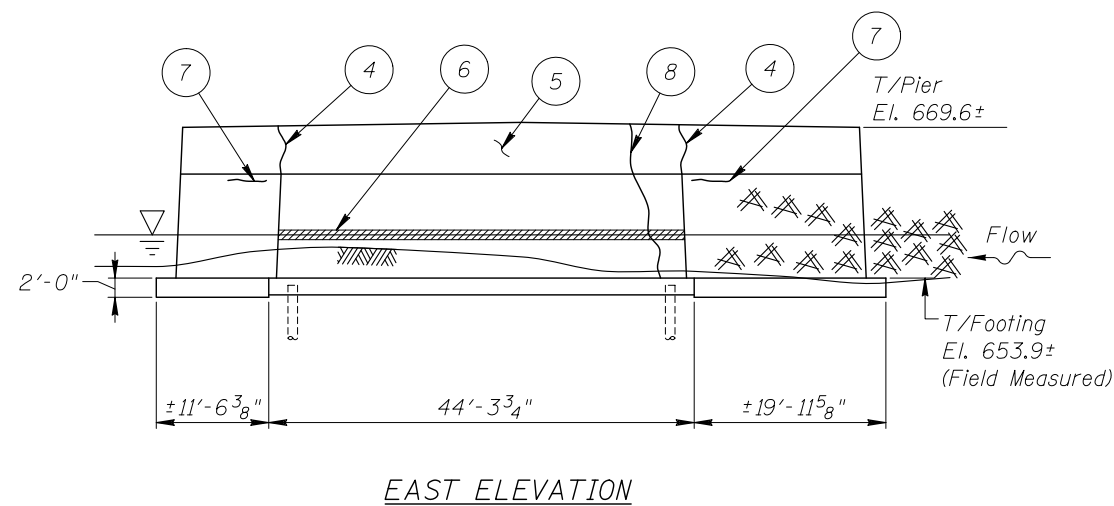
LEGEND:
 - - - - - Channel Bottom, 1977 Design Plans.
 _____ Channel Bottom, December, 2014.

VILLAGE OF VILLA PARK		
ST. CHARLES ROAD OVER SALT CREEK STRUCTURE NUMBER: 022-6950		
CHANNEL CROSS SECTIONS		
Drawn By: PRH	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-00993</small>	Date: DEC., 2014
Checked By: PS		Scale: As Noted
Code: 87776950		Figure No.: 3



INSPECTION NOTES:

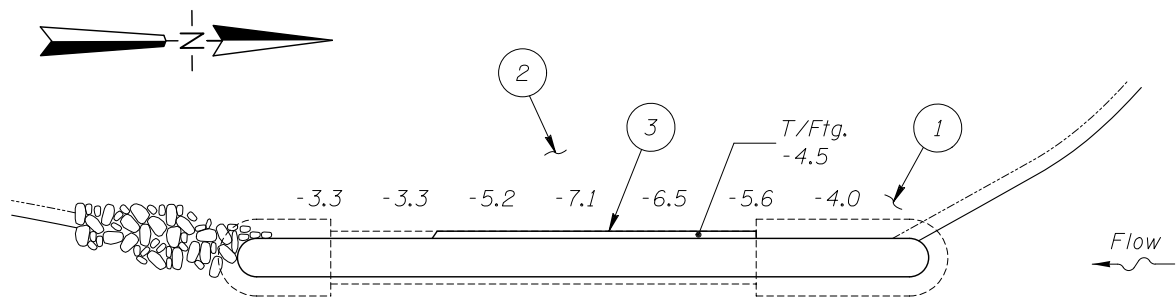
- ① The channel bottom material consisted of sand and silt infill allowing up to 12 inches of probe rod penetration.
- ② The channel bottom material around the perimeter of the pier consisted of sand and gravel allowing up to 6 inches of probe rod penetration.
- ③ The footing was partially exposed around the upstream end and west side of the pier. The exposure ranged from only top of the footing exposure at the downstream end to 0.8 of a foot of vertical exposure near mid-point of the pier. Left in-place formwork, consisting of vertical timber boards, was noted along the footing of the original pier construction.
- ④ Cracks with occasional minor concrete section losses in the cold construction joints between the original and newer portions of the pier. The cracks measured up to 1/8 inch wide and extended from top of the pier to the channel bottom.
- ⑤ The concrete of the pier extension exhibited random vertical hairline cracks with efflorescence and areas of rust staining, typically located near the horizontal cold construction joint.
- ⑥ A band of concrete scaling, with up to 1/2 inch of penetration, on the original pier construction, extended from 6 inches above to 6 inches below the waterline.
- ⑦ Two horizontal cracks, measuring up to 1/8 inch wide, with rust staining, located 6 inches below the horizontal construction joint near the upstream and downstream quarter points on the east face of the pier.
- ⑧ A vertical hairline to 1/16 inch wide crack with associated map cracking extended along the full height of the pier wall.
- ⑨ A moderate accumulation of timber debris, consisting of up to two foot diameter and smaller tree branches, was noted at the upstream nose and both faces of the pier. The debris extended 5 feet off the faces, 8 feet off the nose and up to 2 feet above the waterline.



LEGEND:

- ④ Indicates Inspection Note Number
- ▨ Channel Bottom
- ▧ Timber Debris

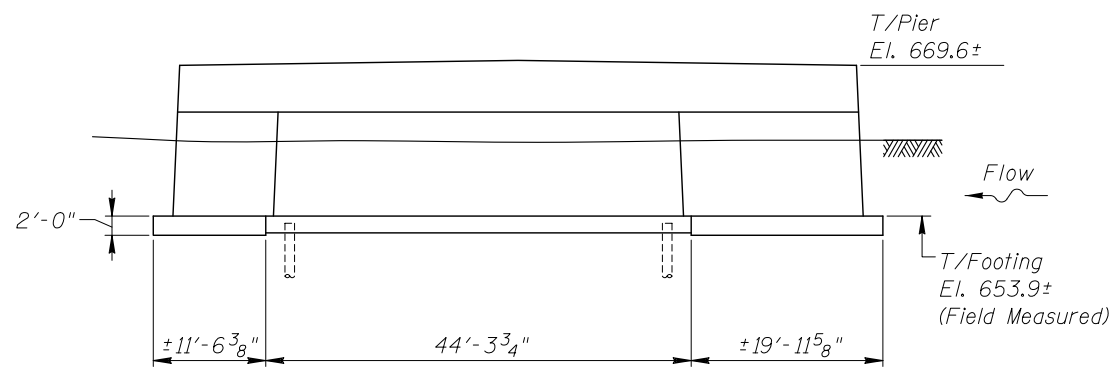
VILLAGE OF VILLA PARK		
ST. CHARLES ROAD OVER SALT CREEK STRUCTURE NUMBER: 022-6950		
WEST PIER		
Drawn By: PRH	COLLINS ENGINEERS	Date: DEC., 2014
Checked By: PS	<small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: 1"=20'
Code: 87776950	<small>ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993</small>	Figure No.: 4



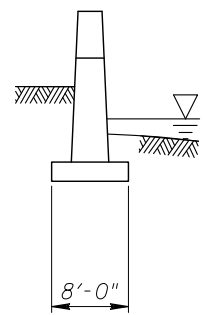
PLAN

INSPECTION NOTES:

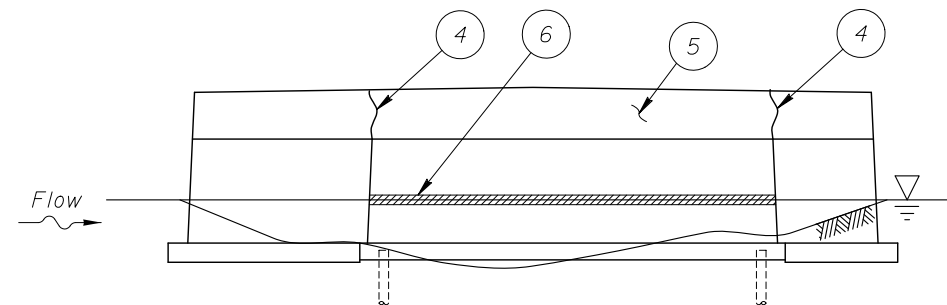
- ① The channel bottom material consisted of sand and silt infill allowing up to 12 inches of probe rod penetration.
- ② The channel bottom material around the perimeter of the pier consisted of sand and gravel allowing up to 6 inches of probe rod penetration.
- ③ The footing was partially exposed along the west side of the pier, with the exposure ranging from only top of the footing exposure near the downstream end to 2.6 feet of vertical exposure near mid-point of the pier. Due to left in-place formwork along the footing of the original pier construction, no possible footing undermining was noted.
- ④ Cracks with occasional minor concrete section losses in the cold construction joints between the original and newer portions of the pier. The cracks measured up to 1/8 inch wide and extended from top of the pier to the channel bottom.
- ⑤ The concrete of the pier extension exhibited random vertical hairline cracks with efflorescence and areas of rust staining, typically located near the horizontal cold construction joint.
- ⑥ A band of concrete scaling, with up to 1/2 inch of penetration, on the original pier construction, extended from 6 inches above to 6 inches below the waterline.



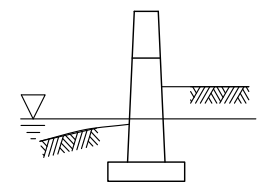
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND:

- ④ Indicates Inspection Note Number
- ▨ Channel Bottom
- ▨▨▨ Timber Debris

VILLAGE OF VILLA PARK		
ST. CHARLES ROAD OVER SALT CREEK STRUCTURE NUMBER: 022-6950		
EAST PIER		
Drawn By: PRH	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: DEC., 2014
Checked By: PS		Scale: 1"=20'
Code: 87776950		Figure No.: 5

APPENDIX B – PHOTOGRAPHS



Photograph 1: Overall View of Bridge No. 022-6950, Looking North.



Photograph 2: Overall View of Bridge No. 022-6950, Looking Southeast.



Photograph 3: View of the West Shoreline Upstream of the Bridge, Looking West.



Photograph 4: View of the West Shoreline Downstream of the Bridge, Looking West.



Photograph 5: View of the East Shoreline Upstream of the Bridge, Looking East.



Photograph 6: View of the East Shoreline Downstream of the Bridge, Looking East.



Photograph 7: View of the West Slope Wall and the Abutment, Looking Northwest.



Photograph 8: View of the West Slope Wall and the Abutment, Looking Southwest.



Photograph 9: View of the West Pier, Looking Northwest.



Photograph 10: View of the West Pier, Looking Southeast.



Photograph 11: View of the Typical Concrete Condition at the Waterline at the Downstream Nose of the West Pier, Looking North.



Photograph 12: View of Concrete Scaling at the Waterline at the Downstream Quarter-Point on the East Face of the West Pier, Looking West.



Photograph 13: View of Cracking at the Upstream Quarter-Point on the East Face of the West Pier, Looking West.



Photograph 14: View of Typical Concrete Condition of West Pier Extension on the West Face, Looking East.



Photograph 15: View of Timber Debris Accumulation at the Upstream Nose of the West Pier, Looking South.



Photograph 16: View of the East Pier, Looking Northwest.



Photograph 17: View of the East Pier, Looking Southeast.



Photograph 18: View of a Typical Crack in Construction Joint on the West Face of the East Pier, Looking East.



Photograph 19: View of the East Slope Wall and the Abutment, Looking Northeast.



Photograph 20: View of the East Slope Wall and the Abutment, Looking Southeast.

E. Correspondence

List of Correspondence:

- Item 1: Letter from the Village of Villa Park stating that the St. Charles Rd. Bridge is not a source of flood damage dated September 29, 2016.
- Item 2: Letter from the City of Elmhurst stating that the St. Charles Rd. Bridge is not a source of flood damage dated September 29, 2016.



Village of Villa Park

20 South Ardmore Avenue, Villa Park, Illinois 60181-2696

DEPARTMENT OF PUBLIC WORKS

Phone (630) 834-8505
Fax (630) 834-8509

VYDAS JUSKELIS, P.E. • Public Works Director

September 29, 2016

Illinois Department of Transportation
Bureau of Local Roads & Streets Region 1 / District 1
201 W. Center Court
Schaumburg, IL 60196

Re: St. Charles Road Bridge Over Salt Creek
Section No. 15-00094-00-BR

I, Vydas Juskelis, hereby certify that to the best of my knowledge the St. Charles Road Bridge over Salt Creek has not been the cause of demonstrable flood damage and that: no building or structures have been impacted by the backwater induced by the existing bridge; and there is no record of complaints of flood damage associated with the St. Charles Road Bridge over Salt Creek.

Sincerely yours,

9/29/2016

Vydas Juskelis, P.E.
Public Works Director



Exp: 11/30/2017

cc: file - St. Charles Rd. Bridge



CITY OF ELMHURST
209 NORTH YORK STREET
ELMHURST, ILLINOIS 60126-2759
(630) 530-3000
www.elmhurst.org

STEVEN M. MORLEY
MAYOR
PATTY SPENCER
CITY CLERK
ELAINE LIBOVICZ
CITY TREASURER
JAMES A. GRABOWSKI
CITY MANAGER

September 29, 2016

Illinois Department of Transportation
Bureau of Local Roads and Streets Region 1 / District 1
201 W. Center Court
Schaumburg, IL 60196

Re: St. Charles Road Bridge Over Salt Creek
Section No. 15-00094-00-BR

I, Kent Johnson, hereby certify that to the best of my knowledge the St. Charles Road Bridge over Salt Creek has not been the cause of demonstrable flood damage. Furthermore there is no known record of building or structures that have been impacted by the backwater induced by the existing bridge; and there is no record of complaints of flood damage associated with the St. Charles Road Bridge over Salt Creek.

Sincerely,

Kent Johnson, P. E., CFM
City Engineer



Tab 4

Wetland Submittal

Section 15-48 Wetland and Buffer Narrative

St. Charles Road Bridge Deck Replacement over Salt Creek Villa Park and Elmhurst, DuPage County, Illinois

November 2018

Project Description. St. Charles Road over Salt Creek is a five-lane roadway located just west of Route 83 in the Village of Villa Park and the City of Elmhurst within DuPage County (sections 3 and 10, T39N, R11E; Elmhurst quadrangle). See Exhibits 1 and 2 under Tab 1. The existing bridge is a 3-span concrete deck beam bridge supported by two abutments and two piers. The existing bridge is 68' long and spans 113'. There is an existing concrete pedestrian path that runs under the eastern span.

The bridge deck and approach roadway are being replaced and widened by approximately 1 foot. The existing bridge piers and abutments will remain in place. Scour protection will be installed around the existing piers in the form of sheet piling. The existing roadway storm sewer system will remain in place with rims to be adjusted as needed.

There are no vegetated wetlands within the project corridor, only Waters of the U.S./Waters of DuPage. V3 received a letter of no objection (LONO) from the U.S. Army Corps of Engineers (USACE) dated February 6, 2017 for the proposed sheet piling being installed around the existing piers. A copy of the LONO from the USACE is included in this Tab 4 submittal.

The following information summarizes the information provided in accordance with the pertinent sections of the DuPage County Countywide Stormwater and Flood Plain Ordinance.

Sec. 15-85. Requirements for Wetland Delineation

The approximately 2.93 – acre project area was investigated by V3 Companies (V3) on October 4, 2018 to determine the presence, extent and quality of any wetlands or other areas under U.S. Army Corps of Engineers (USACE) and/or DuPage County jurisdiction. The Waters of DuPage/Waters of the U.S. is not mapped and does not meet the requirements to be considered Critical.

As part of the wetland delineation assessment, Illinois Department of Natural Resources (IDNR) and US Fish and Wildlife Service (USFWS) threatened and endangered species evaluations were conducted (**Appendix V** of the attached delineation report).

The IDNR confirmed that the Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location. A copy of the termination letter from the IDNR is included in **Appendix V** of the attached delineation report.

The USFWS Section 7 consultation did not find species or critical habitat present on the project area. A copy of the USFWS Section 7 consultation is included in **Appendix V** of the attached delineation report.

Delineation Summary.

One Waters of the U.S. (Area 1) was delineated on the project area. Area 1 (~0.43 acres on-site, 0.61+ acres off-site) is located through the center of the project area and consists of Salt Creek, a Waters of the U.S. Area 1 continues off-site to the north and south. A summary of the identified areas is provided in Table 1 and a summary of the data points is provided in Table 2 of V3's Wetland Delineation Report provided in this Tab 4 submittal.

The delineated Waters boundary for Area 1 was field verified by Mr. Nick Assell, Wetland Specialist with DuPage County Stormwater Management, and Mr. Scott Brejcha, Wetland Specialist with V3 Companies, on November 14, 2018.

No other wetlands or Waters of DuPage were identified within 100-feet of the project area, per the DuPage County Ordinance.

In V3's professional opinion, Area 1 is a non-HQAR Waters of the U.S./Waters of DuPage subject to USACE and DuPage County Stormwater jurisdiction.

The project area is located north and south of St. Charles Road, east of Monterey Road and west of Kingery Highway/Route 83 in Villa Park, DuPage County, Illinois (Sections 3 and 10, T39N, R11E; 41.890100°N, -87.964100°W; Elmhurst quadrangle, Figure 1).

One wetland is identified in the center of the project area on the National Wetlands Inventory (NWI) Map (Figure 2). The area is classified as riverine, perennial, unconsolidated bottom, permanently flooded (R2UBH).

One regulatory wetland is identified in the center of the project area on the DuPage County Wetlands Map (Figure 3).

The USGS Hydrologic Atlas (Figure 4) shows the presence of Salt Creek throughout the project area.

The 12-Digit Hydrologic Unit Code (HUC) Map (Figure 5) shows that the project area lies within the Lower Salt Creek sub watershed (Hydrologic Unit 071200040404), which is associated with the larger Des Plaines River watershed.

The FEMA Flood Insurance Rate Map (FIRM) (Figure 6) identifies flood zone A and X throughout the project area associated with Salt Creek.

The DuPage County Regulatory Flood Map (RFM) (Figure 7) identifies flood zones A, AE and X throughout the project area associated with Salt Creek.

Three soil series are mapped in the project area on the Soil Survey of DuPage County, Illinois (2015) Map (Figure 8). The soil series include Orthents, clayey (805B), and Markham-Ashkum-Beecher complex (854B) and Sawmill silty clay loam (3107A). Markham-Ashkum-Beecher

complex (854B) and Sawmill silty clay loam (3107A) are listed as hydric soils in Illinois.

Figure 9, a Google Earth Aerial Image (2018), shows the location of all data points and the locations of the delineated Waters of the U.S. as collected via a handheld GPS unit.

Sec. 15-86. Requirements for Developments Affecting Wetlands

No wetlands or Waters of DuPage/Waters of the U.S. will be directly or indirectly impacted as part of this project. The proposed sheet piling around the existing piers is not an impact or discharge of fill material into a Waters of the U.S. (verified through receipt of the LONO from the USACE). The proposed sheet piling will be driven down from the existing deck to protect the existing piers and, in V3's professional opinion, is not an impact to Waters of DuPage. No construction equipment or work will take place from the existing shoreline or within Salt Creek. The proposed sheet piling will be installed around the piers from the existing deck of the St. Charles Road bridge.

- A. Development affecting the Waters on-site will not occur without certification, or a letter of permission from DuPage County Stormwater.
- B. The Waters of DuPage (Salt Creek) identified on the site are not considered critical/high quality areas; therefore, this is not applicable.
- C. Not applicable as no wetlands are present within the project area and the proposed sheet piling to be driven from the existing bridge deck around the existing piers of the bridge is also not an impact to Waters; therefore, an Alternatives Analysis is not required.
- D. Not applicable. There are no temporary impacts proposed as part of this project.
- E. Not applicable as vegetative maintenance within the wetlands is not proposed as part of this project.

Sec. 15-87. Indirect Impacts to Wetlands

This is not applicable as there are no vegetated wetlands within the project corridor that can be indirectly impacted. The driving of the sheet pilings around the existing piers for scour protection is not an impact and does not require mitigation.

Sec. 15-88. Wetland Mitigation Requirements

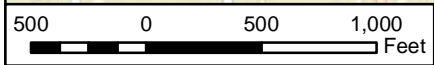
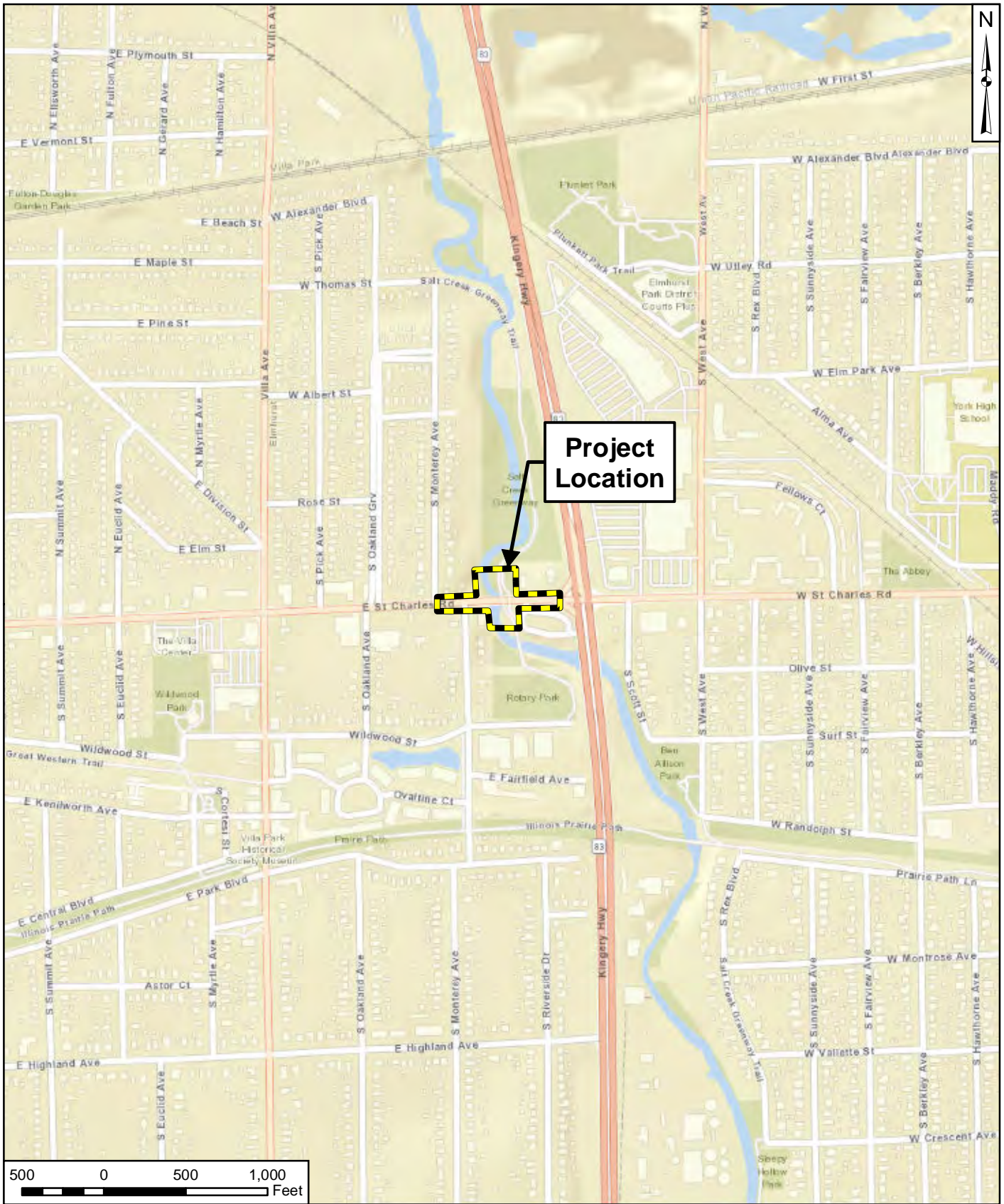
Not applicable as there will be no direct or indirect impact to wetlands or Waters of DuPage/Waters of the U.S.


Sec. 15-92. Identification of Buffers

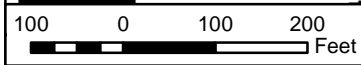
The existing buffer to Waters of DuPage (Salt Creek) is 15 feet or the elevation matching the BFE. No impacts to the existing Waters buffer will occur as all of the work will take place from above on the existing deck of the St. Charles Road bridge over Salt Creek. There are no buffer impacts proposed as part of this project.


Sec. 15-94. Development Affecting a Buffer

No impacts to the existing Waters buffer will occur as all of the work will take place from above on the existing deck of the St. Charles Road bridge over Salt Creek. Therefore, no impacts to the buffer of the Waters of DuPage will occur as part of this project.



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: PROJECT LOCATION MAP</p>		
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: ESRI World Street Map</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>	<p>FIGURE: 1</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>		<p>SCALE: See Scale Bar</p>			



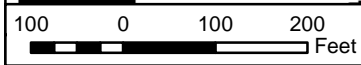
 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: NATIONAL WETLANDS INVENTORY (NWI) MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: USGS Topographic Map Elmhurst Quadrangle (1998)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			




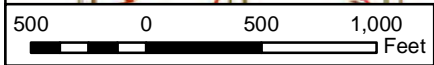
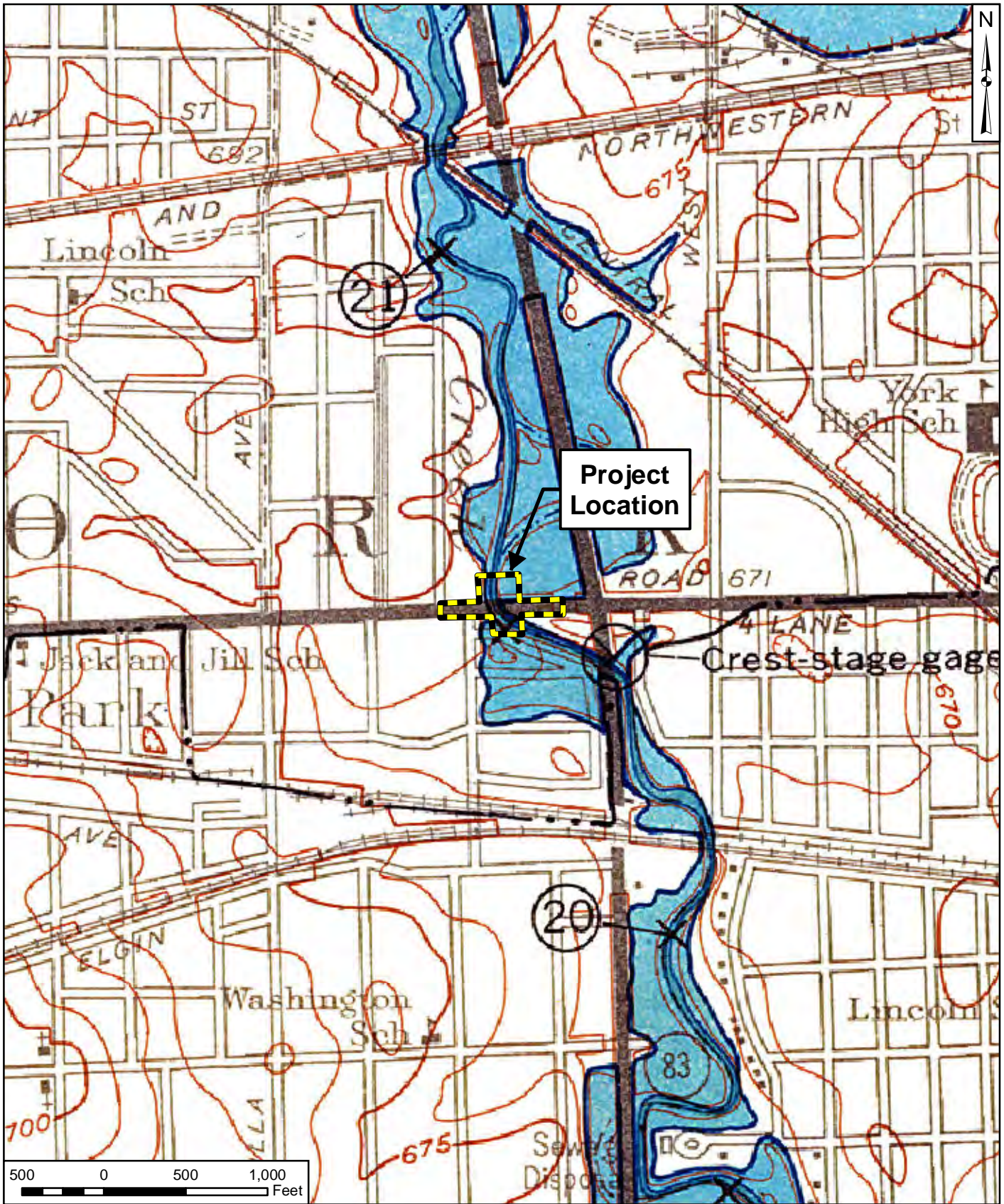
Legend


DuPage County Wetlands

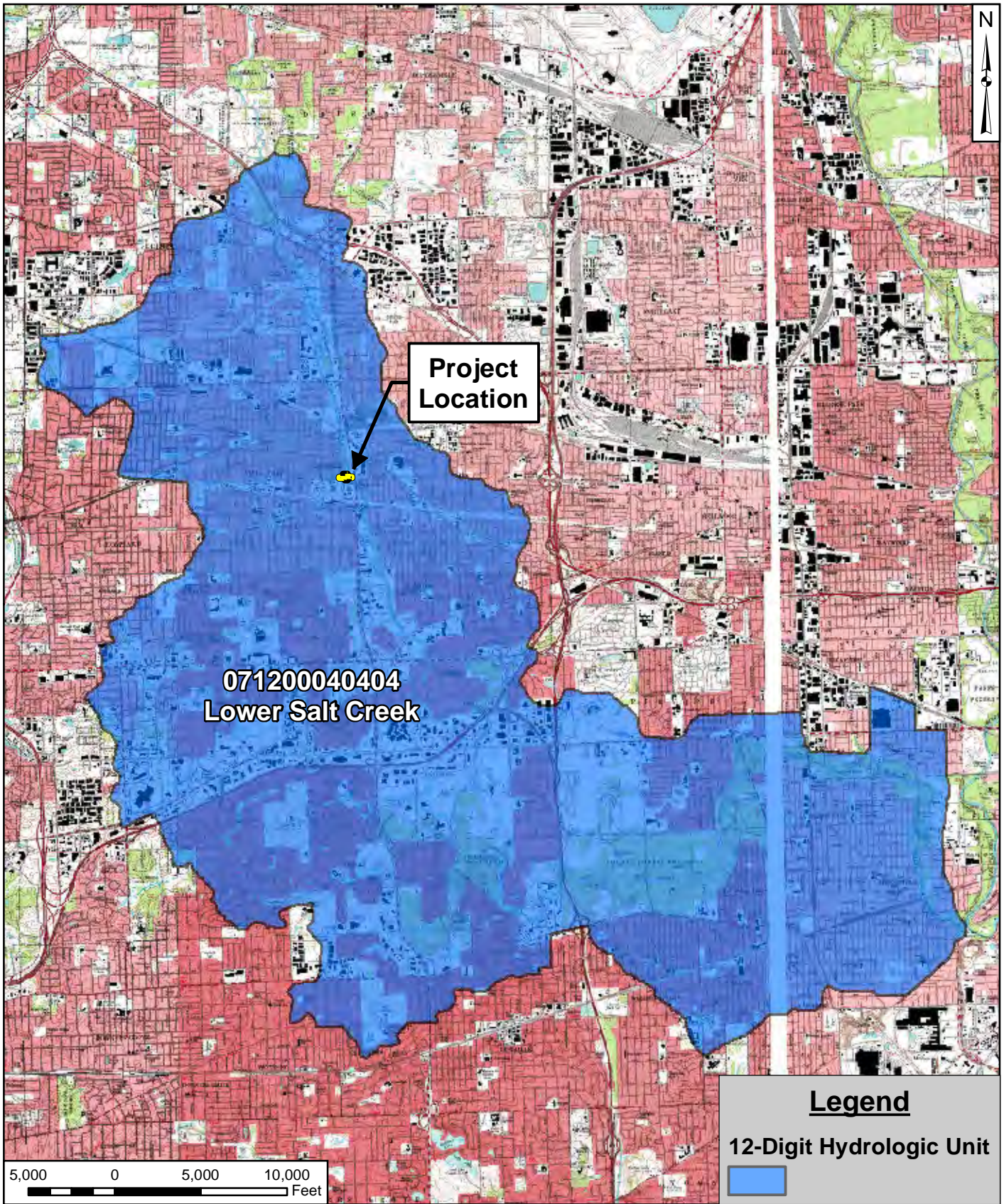
- Critical
- Regulatory



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	PROJECT NO.:	CLIENT:	DUPAGE COUNTY WETLANDS MAP	
	18259	Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	TITLE:	St. Charles Road Bridge Over Salt Creek Villa Park, Illinois
CREATED BY:	BASE LAYER:	FIGURE:		
AMM	USGS Topographic Map Elmhurst Quadrangle (1998)	3		
DATE:	SCALE:			
10/03/18	See Scale Bar			
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"				



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: USGS HYDROLOGIC ATLAS</p>	
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<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			

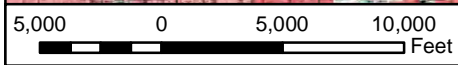



**071200040404
Lower Salt Creek**

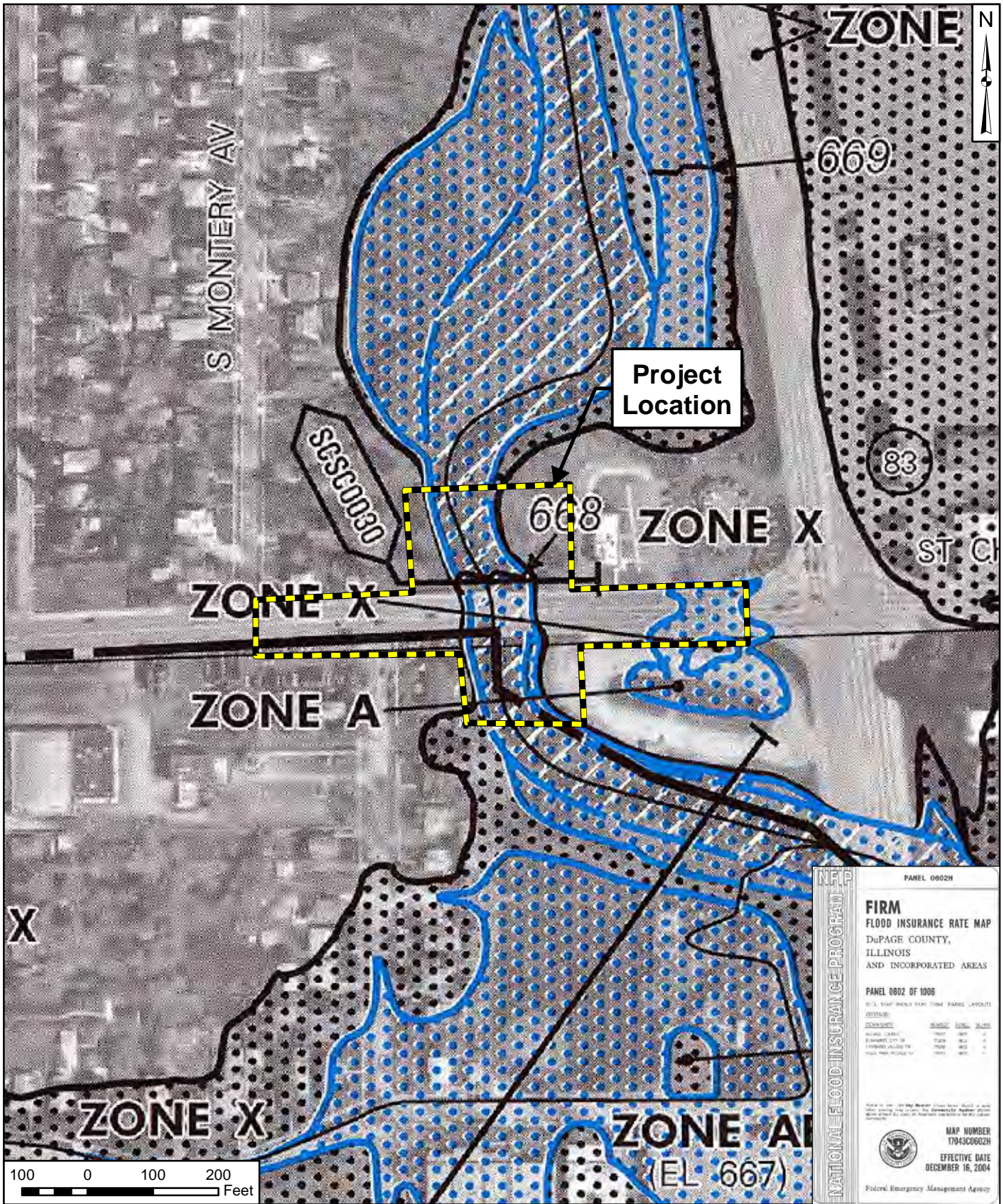
**Project
Location**

Legend

12-Digit Hydrologic Unit



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: 12-DIGIT HYDROLOGIC UNIT CODE (HUC) MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: USGS Topographic Map DuPage County, IL (2002)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			



NFP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0802H

FIRM
FLOOD INSURANCE RATE MAP
 DuPAGE COUNTY,
 ILLINOIS
 AND INCORPORATED AREAS

PANEL 0802 OF 1008

U.S. MAP SCALE FOR 100M PANEL LAYOUT

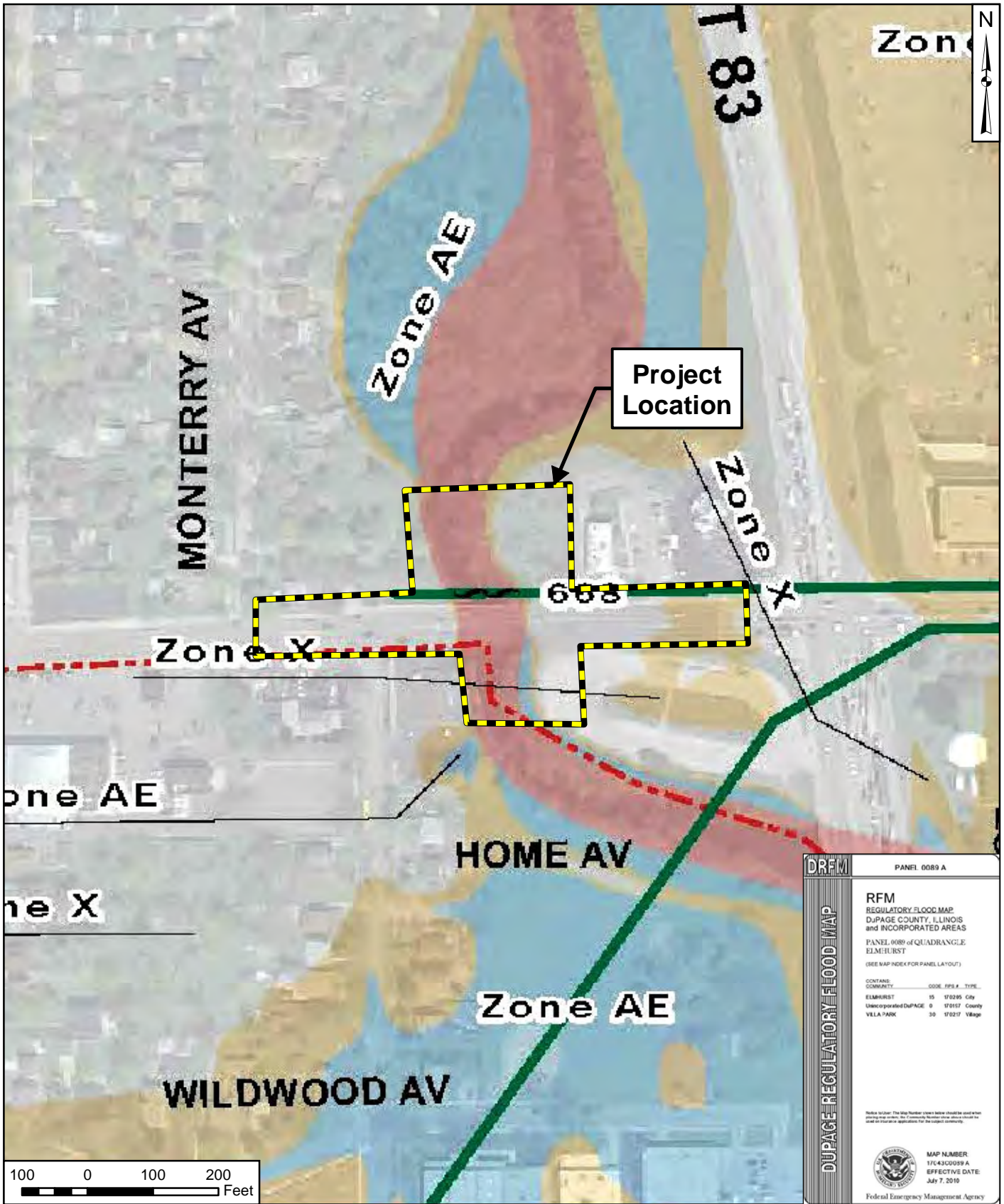
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EDWARDS CITY	1:2500	FEET	1:2500
EDWARDS VILLAGE	1:2500	FEET	1:2500
VILLA PARK VILLAGE	1:2500	FEET	1:2500

MAP NUMBER
 17043C0602H

EFFECTIVE DATE
 DECEMBER 16, 2004

Federal Emergency Management Agency

 V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	FEMA FLOOD INSURANCE RATE MAP (FIRM)	
	CREATED BY: AMM	DATE: 10/03/18	BASE LAYER: FEMA FIRM Panel 17043C0602H	TITLE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: See Scale Bar			

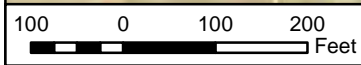


DUPAGE REGULATORY FLOOD MAP	DRFM	PANEL 0089 A															
	RFM REGULATORY FLOOD MAP DUPAGE COUNTY, ILLINOIS AND INCORPORATED AREAS																
	PANEL 0089 of QUADRANGLE ELMHURST (SEE MAP INDEX FOR PANEL LAYOUT)																
	<table border="1"> <thead> <tr> <th>CONTAINS</th> <th>CODE</th> <th>FIPS #</th> <th>TYPE</th> </tr> </thead> <tbody> <tr> <td>ELMHURST</td> <td>15</td> <td>170295</td> <td>City</td> </tr> <tr> <td>Unincorporated DUPAGE</td> <td>0</td> <td>170157</td> <td>County</td> </tr> <tr> <td>VILLA PARK</td> <td>39</td> <td>170217</td> <td>Village</td> </tr> </tbody> </table>		CONTAINS	CODE	FIPS #	TYPE	ELMHURST	15	170295	City	Unincorporated DUPAGE	0	170157	County	VILLA PARK	39	170217
CONTAINS	CODE	FIPS #	TYPE														
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Unincorporated DUPAGE	0	170157	County														
VILLA PARK	39	170217	Village														

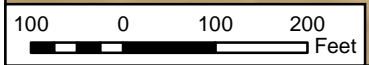
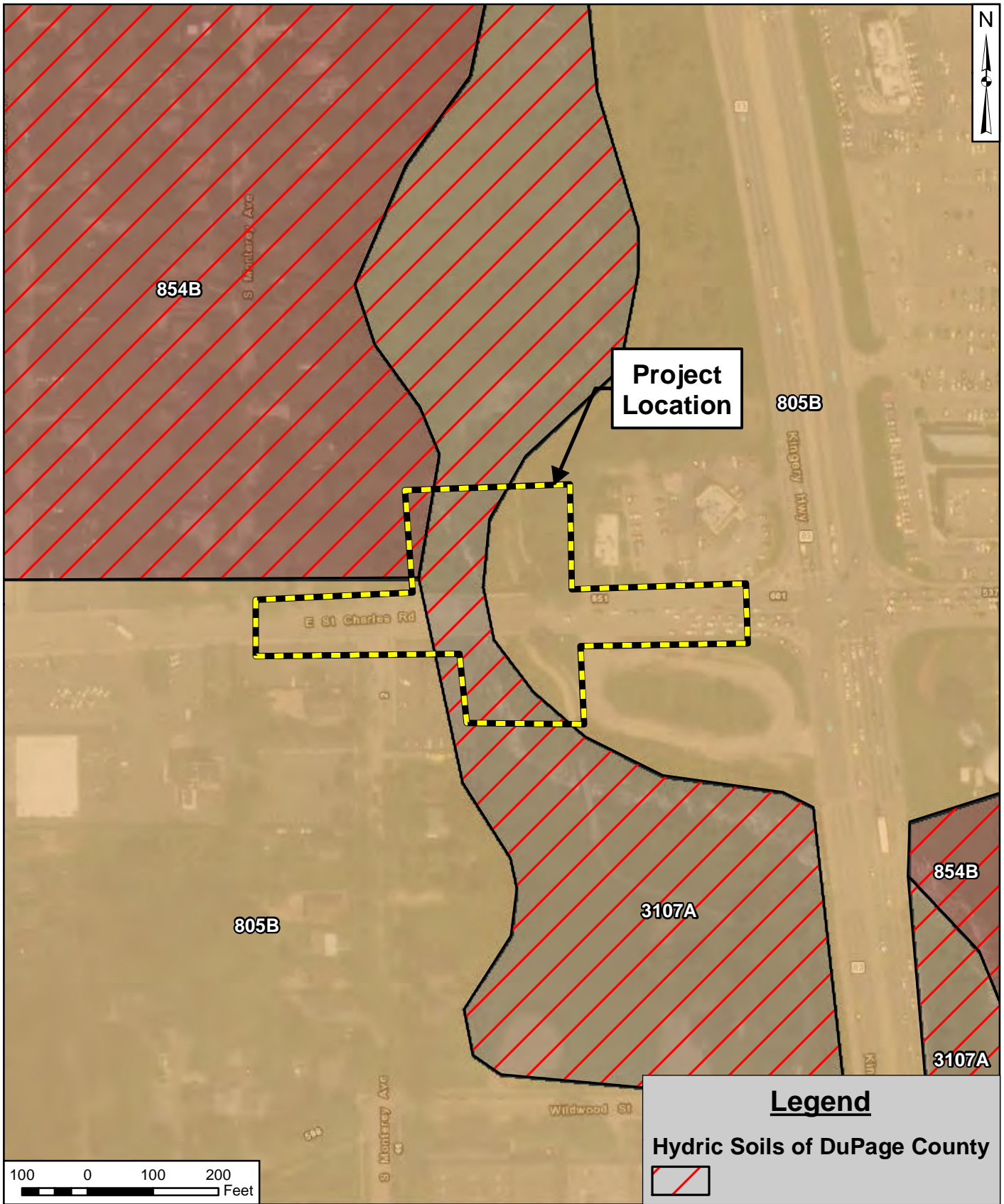
Notice to User: The Map Number shown below should be used in place of the name of the community when the map is used in other applications for the project community.

FEDERAL EMERGENCY MANAGEMENT AGENCY

MAP NUMBER: 17043C0089 A
EFFECTIVE DATE: July 7, 2010



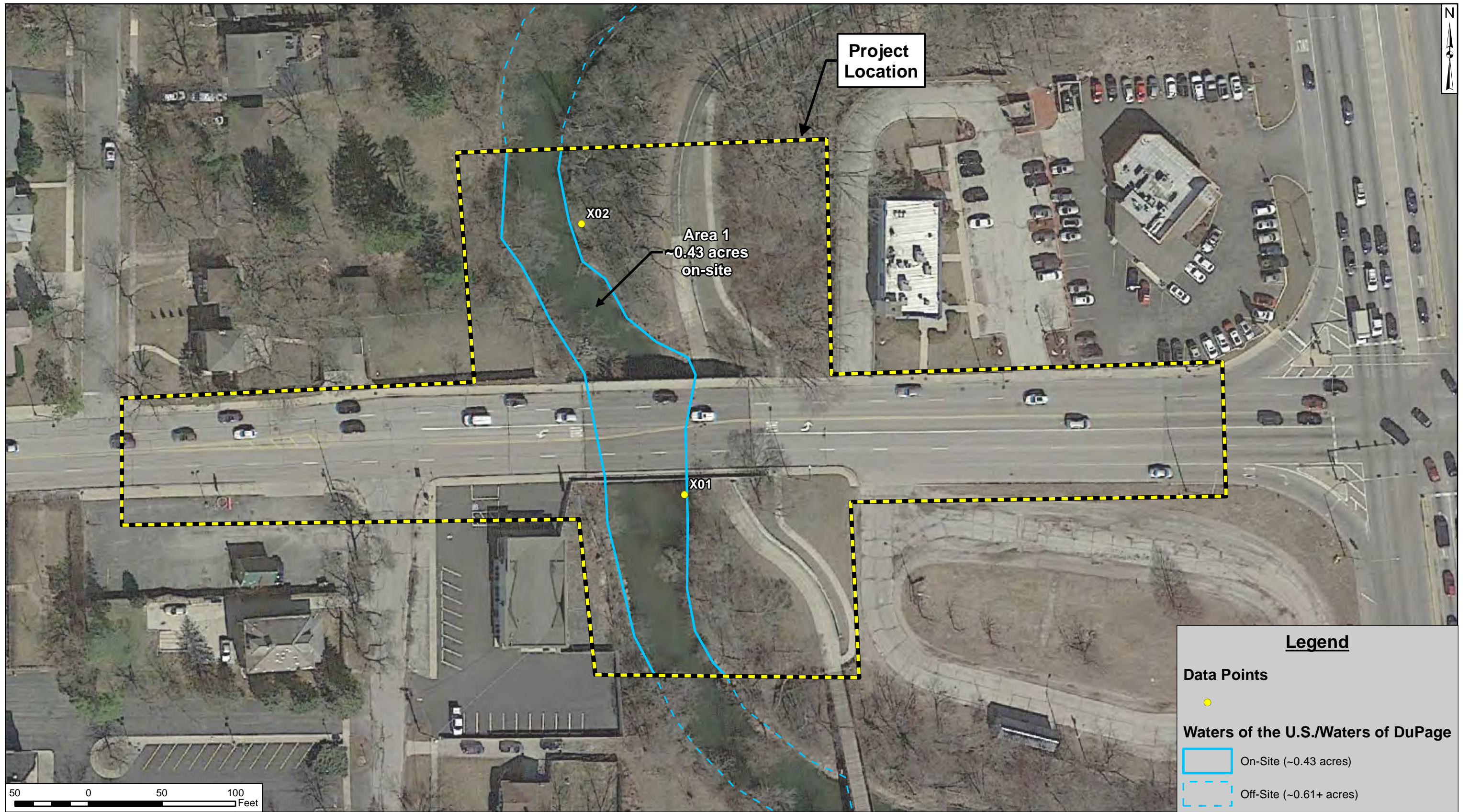
 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p> <p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	PROJECT NO.: 18259 CREATED BY: AMM DATE: 10/03/18	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181 BASE LAYER: DuPage County RFM Panel 17043C0088 A	TITLE: DUPAGE COUNTY REGULATORY FLOOD MAP (RFM) SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois	FIGURE: 7
	SCALE: See Scale Bar			
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Legend

Hydric Soils of DuPage County

 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: SOIL SURVEY OF DUPAGE COUNTY, ILLINOIS (2015) MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: DigitalGlobe Aerial Imagery (2017)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			



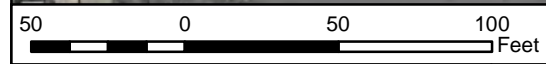
Legend

Data Points

-

Waters of the U.S./Waters of DuPage

- On-Site (~0.43 acres)
- Off-Site (~0.61+ acres)



 Visio, Vertere, Virtute... "The Vision To Transform With Excellence"	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois	TITLE: WATERS DELINEATION MAP	FIGURE: 9
	CREATED BY: AMM	BASE LAYER: Google Earth Aerial Imagery (2018)			
	DATE: 11/14/2018				
	SCALE: See Scale Bar				



**WETLAND
DELINEATION AND
ASSESSMENT REPORT**

PROJECT SITE:

**St. Charles Road Bridge
Over Salt Creek
Village Park, DuPage County, Illinois**

PREPARED FOR:

Village of Villa Park
20 S. Ardmore Avenue
Villa Park, Illinois 60181

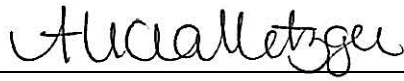
PREPARED BY:

V3 Companies, Ltd.
7325 Janes Avenue
Woodridge, Illinois 60517
630.724.9200


November 14, 2018

We hereby certify that this Wetland Delineation and Assessment Report has been prepared by V3 Companies, Ltd. for use by the Village of Villa Park, their affiliates, lenders, and assignees.

Project Staff:




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Soil Scientist



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Wetland Scientist

Approved by:



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Wetland Consulting Group Leader
Natural Resources Division



Thomas E. Slowinski, PWS
Technical Director, Wetlands and Ecology
Natural Resources Division

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APPENDIX II	–	REPRESENTATIVE PHOTOGRAPHS
APPENDIX III	–	REGULATORY INFORMATION
APPENDIX IV	–	DELINEATION METHODS AND FLORISTIC ANALYSIS
APPENDIX V	–	DUPAGE COUNTY WETLAND ASSESSMENT

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EXECUTIVE SUMMARY

The approximately 2.93 – acre project area was investigated by V3 Companies (V3) on October 4, 2018 to determine the presence, extent and quality of any wetlands or other areas under U.S. Army Corps of Engineers (USACE) and/or DuPage County Stormwater jurisdiction.

Delineation Summary.

One Waters of the U.S./Waters of DuPage (Area 1) was delineated on the project area. Area 1 (~0.43 acres on-site, 0.61+ acres off-site) is located through the center of the project area and consists of Salt Creek, a Waters of the U.S./Waters of DuPage. Area 1 continues off-site to the north and south. A summary of the identified areas is provided in Table 1 and a summary of the data points is provided in Table 2.

No other wetlands or Waters of DuPage were identified within 100-feet of the project area, per the DuPage County Ordinance.

In V3's professional opinion, Area 1 is a non-HQAR Waters of the U.S./Waters of DuPage subject to USACE and DuPage County Stormwater jurisdiction.

The delineated Waters boundary for Area 1 was field verified by Mr. Nick Assell, Wetland Specialist with DuPage County Stormwater Management, and Mr. Scott Brejcha, Wetland Specialist with V3 Companies, on November 14, 2018.

Regulatory Summary.

Pursuant to Section 404 of the Clean Water Act, the U. S. Army Corps of Engineers (USACE) has jurisdiction over the placement of fill or dredged material in all jurisdictional waters of the United States. Jurisdictional areas include rivers, streams, tributary waterways, lakes, natural ponds and wetlands adjacent to these areas. A Section 404 permit must be obtained before placing any fill material within a jurisdictional area.

Wetlands that lack a continuous surface connection through a relatively permanent tributary to traditionally navigable waters are considered isolated wetlands and are not regulated under the Clean Water Act.¹ To be considered relatively permanent, a tributary must have continuous flow at least seasonally (typically at least three months). Swales and erosional features are generally not considered to be tributaries or waters of the United States. Ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow are also generally not waters of the U. S. Wetlands adjacent to tributaries and ditches that do not have a relatively continuous flow will be regulated only if they have a significant nexus to traditionally navigable waters. A significant nexus determination will be based on hydrologic and ecological factors.

If less than 0.10 acre of impact to USACE jurisdictional wetlands are proposed, the project would likely qualify for a Regional Permit from the USACE without wetland mitigation. If wetland impacts will consist of between 0.10 acre and 1.0 acre of wetland, a Regional Permit would still be possible, but compensatory mitigation will be required at a minimum ratio of 1.5:1. Mitigation at a higher ratio

¹ December 2, 2008, USEPA and Department of the Army Joint Memorandum, Clean Water Act Jurisdiction Following the U. S. Supreme Court Decision in *Rapanos v. United States* and *Carabell v. United States*.

(typically 3:1 or greater) would be required for impacts to High Quality Aquatic Resources (HQAR). Wetland impacts greater than 1.0 acre will require an Individual Permit, with a public comment period and additional regulatory scrutiny. Required buffer widths under the Regional Permit Program are shown in Table 1. If a permit from the USACE is not required, then the USACE buffer requirements are not applicable.

Pursuant to the 2013 DuPage County Countywide Stormwater and Flood Plain Ordinance (Ordinance), any development that affects a special management area (i.e., floodplain, wetland, wetland buffer, or waterway buffer) requires a Stormwater Management Permit. All delineated wetlands are to be classified as critical or regulatory wetlands according to the criteria defined in Section 15-85 of the Ordinance. A vegetated buffer 50 feet wide is required around all regulatory wetlands and a vegetated buffer 100 feet wide is required around all critical wetlands, unless mitigation for buffer functions is provided. Information concerning applicable regulatory requirements is provided in **Appendix III**.

Table 1. Wetland Summary Table.

Area	On-Site Size (Acres)	Off-Site Size (Acres)	Native Mean Conservatism (NMC)*	Floristic Quality Index (FQI)*	Quality**	USACE Jurisdiction	Buffer Required
1	~0.43	~0.61+	N/A	N/A	Non-HQAR	Y	50'
Total	~0.43	~0.61+					

* Based on the Floristic Quality Assessment (FQA) methodology in *Plants of the Chicago Region* (Swink and Wilhelm, 1994).

** **Regulatory**= Non-HQAR Isolated Wetland (NMC ≤ 3.5 and FQI ≤ 20, DuPage County jurisdiction); **Critical**= High Quality Isolated Wetland (NMC ≥ 3.5 or FQI ≥ 20, DuPage County jurisdiction); **Non-HQAR**= Non- High Quality Aquatic Resource (NMC ≤ 3.5 and FQI ≤ 20, USACE jurisdiction); **HQAR**= High Quality Aquatic Resource (NMC ≥ 3.5 or FQI ≥ 20, USACE jurisdiction); **WOUS**= Waters of the United States (USACE jurisdiction)

Table 2. Data Point Summary Table.

Area	Data Point	Hydrophytic Vegetation?	Hydric Soils?	Wetland Hydrology?	Wetland/Waters of the US? (Y/N)
1	X01	N	Y	Y	Y
2	X02	N	Y	N	N

INTRODUCTION AND BACKGROUND

The approximately 2.93 – acre project area was investigated by V3 Companies (V3) on October 4, 2018 to determine the presence, extent and quality of any wetlands or other areas under U.S. Army Corps of Engineers (USACE) and/or DuPage County jurisdiction. Any identified wetland boundaries are marked in the field using pink wire flags labeled “Wetland Delineation” and numbered consecutively from beginning to end. This report summarizes the results of the field investigation and provides technical documentation for all investigated areas. The delineated Waters boundary for Area 1 was field verified by Mr. Nick Assell, Wetland Specialist with DuPage County Stormwater Management, and Mr. Scott Brejcha, Wetland Specialist with V3 Companies, on November 14, 2018.

The project area is located north and south of St. Charles Road, east of Monterey Road and west of Kingery Highway/Route 83 in Villa Park, DuPage County, Illinois (Sections 3 and 10, T39N, R11E; 41.890100°N, -87.964100°W; Elmhurst quadrangle, Figure 1).

One wetland is identified in the center of the project area on the National Wetlands Inventory (NWI) Map (Figure 2). The area is classified as riverine, perennial, unconsolidated bottom, permanently flooded (R2UBH).

One regulatory wetland is identified in the center of the project area on the DuPage County Wetlands Map (Figure 3).

The USGS Hydrologic Atlas (Figure 4) shows the presence of Salt Creek throughout the project area.

The 12-Digit Hydrologic Unit Code (HUC) Map (Figure 5) shows that the project area lies within the Lower Salt Creek sub watershed (Hydrologic Unit 071200040404), which is associated with the larger Des Plaines River watershed.

The FEMA Flood Insurance Rate Map (FIRM) (Figure 6) identifies flood zone A and X throughout the project area associated with Salt Creek.

The DuPage County Regulatory Flood Map (RFM) (Figure 7) identifies flood zones A, AE and X throughout the project area associated with Salt Creek.

Three soil series are mapped in the project area on the Soil Survey of DuPage County, Illinois (2015) Map (Figure 8). The soil series include Orthents, clayey (805B), and Markham-Ashkum-Beecher complex (854B) and Sawmill silty clay loam (3107A). Markham-Ashkum-Beecher complex (854B) and Sawmill silty clay loam (3107A) are listed as hydric soils in Illinois.

Figure 9, a Google Earth Aerial Image (2018), shows the location of all data points and the locations of the delineated Waters of the U.S. as collected via a handheld GPS unit.

WETLAND DELINEATION METHODS

Wetland delineations are conducted following the methods given in the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest Region*. Under the delineation procedures in this manual, an area must exhibit characteristic hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a wetland. If field investigation determines that any of the three parameters are not satisfied, the area usually does not qualify as wetland. Moreover, drainage ditches excavated in dry land are generally not considered jurisdictional waters of the United States by the Corps of Engineers (preamble to 33 CFR Parts 320 through 330, *Federal Register* Vol. 56, No. 219, 41217).

As part of a delineation report, data forms and technical information are required by the U.S. Army Corps of Engineers, to document the three parameters for any area determined to be wetland. Data forms for wetlands identified at the project area are provided in **Appendix I**. The vegetation data calculated on the data forms reflects the changes made to the National Wetland Plant List as of May 1, 2016. Representative photographs of delineated wetlands are provided in **Appendix II**. A brief description of the field methods used and a description of the three wetland parameters are provided in **Appendix IV**.

Plant species lists are compiled for each area identified, focusing on the plant communities within each identified wetland area. This accumulated floristic data is analyzed using the Floristic Quality Assessment (FQA) methodology, which is an assessment technique for a rapid quality evaluation of vegetation in a defined area. Technical names in the FQA and this report follow the nomenclature of *The National Wetland Plant List: 2014 Update of Wetland Ratings* (Lichvar et. al., 2014). A detailed explanation of the Floristic Quality Assessment method is provided in **Appendix IV**.

As part of the wetland delineation assessment, Illinois Department of Natural Resources (IDNR) and US Fish and Wildlife Service (USFWS) threatened and endangered species evaluations were conducted (**Appendix V**).

The IDNR confirmed that the Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location. A copy of the termination letter from the IDNR is included in **Appendix V**.

The USFWS Section 7 consultation did not find species or critical habitat present on the project area. A copy of the USFWS Section 7 consultation is included in **Appendix V**.

RESULTS OF THE FIELD INVESTIGATION

JURISDICTIONAL AREAS

Area 1 – Waters of the U.S./Waters of DuPage

Data Point X01

Area 1 (~0.43 acres on-site, 0.61+ acres off-site) is located through the center of the project area and consists of Salt Creek, a Waters of the U.S./Waters of DuPage. Area 1 continues off-site to the north and south.

Summary:

- Waters of the U.S./Waters of DuPage
- Jurisdiction: USACE/DuPage County Stormwater
- Quality: Non-HQAR
- Vegetated Buffer Required: 50'/BFE

Vegetation: Data Point X01 is an unvegetated Waters of the U.S./Waters of DuPage, so the vegetation criterion is not satisfied.

Soils: The soil in this location was too saturated to retrieve and could not be classified. However, inundation of the area strongly suggests the presence of hydric soil indicators, so the soils criterion is satisfied.

Hydrology: The area was inundated to a depth of 12+ inches, so the hydrology criterion is satisfied.

Conclusion: Data Point X01 fails to satisfy the vegetation criterion and does not qualify as wetland. However, this area qualifies as a Waters of the United States/Waters of DuPage.

ADDITIONAL AREAS INVESTIGATED

Area 2 – Upland

Data Point X02

Area 2 consists of the upland areas around Area 1.

Vegetation: The dominant plant species at Data Point X02 are Siberian elm (*Ulmus pumila*), silver maple (*Acer saccharinum*) and common buckthorn (*Rhamnus cathartica*). 66.7% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

Soils: The soil profile at Data Point X02 consisted of 0-15 inches of black (10YR 2/1) silt loam underlain by 5 inches, to a depth of 20 inches below the surface, of dark grayish brown (10YR 4/2) silty clay loam with 15% yellowish brown (10YR 5/6) redoximorphic concentrations. This profile exhibits hydric soil field indicator A11, Depleted Below Dark Surface, and satisfies the soils criterion.

Hydrology: Neither primary nor secondary wetland hydrology indicators were observed at Data Point X02, so the hydrology criterion is not satisfied.

Conclusion: Data Point X02 fails to satisfy the hydrology criterion; therefore Area 2 does not qualify as wetland or Waters.

REFERENCES CITED

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APPENDIX I

WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: St. Charles Road Bridge Over Salt Creek City/County: Villa Park/DuPage Sampling Date: 04-Oct-18
 Applicant/Owner: Village of Villa Park State: IL Sampling Point: X01
 Investigator(s): A. Metzger, D. Jablonski Section, Township, Range: S 10 T 39N R 11E
 Landform (hillslope, terrace, etc.): Shoreline Local relief (concave, convex, none): concave
 Slope: 0.0% / 0.0 ° Lat.: 41.890100 Long.: -87.964100 Datum: NAD 1983
 Soil Map Unit Name: Sawmill silty clay loam (3107A) NWI classification: R2UBH

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: This location fails the vegetation criterion and is not wetland. However, the area qualifies as a Waters of the United States.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>30 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Herb Stratum (Plot size: <u>5 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Woody Vine Stratum (Plot size: <u>5 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of: Multiply by:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 0 (A) 0 (B)

Prevalence Index = B/A = 0.000

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 This area is an unvegetated Waters of the U.S., so the vegetation criterion is not satisfied.

SOIL

Sampling Point: **X01**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0+							TSTR	

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 The soil in this location was too saturated to retrieve and could not be classified. However, inundation of the area strongly suggests the presence of hydric soil indicators, so the soils criterion is satisfied.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes No Depth (inches): 12

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 The area was inundated to a depth of 12+ inches, so the hydrology criterion is satisfied.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: St. Charles Road Bridge Over Salt Creek City/County: Villa Park/DuPage Sampling Date: 04-Oct-18
 Applicant/Owner: Village of Villa Park State: IL Sampling Point: X02
 Investigator(s): A. Metzger, D. Jablonski Section, Township, Range: S 3 T 39N R 11E
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): flat
 Slope: 0.0% / 0.0 ° Lat.: 41.890600 Long.: -87.964100 Datum: NAD 1983
 Soil Map Unit Name: Orthents, clayey (805B) NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: This location fails the hydrology criterion and does not qualify as wetland.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>30 feet</u>)				
1. <u>Ulmus pumila</u>	20	<input checked="" type="checkbox"/> 50.0%	UPL	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
2. <u>Acer saccharinum</u>	20	<input checked="" type="checkbox"/> 50.0%	FACW	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	40	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15 feet</u>)				
1. <u>Rhamnus cathartica</u>	80	<input checked="" type="checkbox"/> 100.0%	FAC	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>120</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>3.167</u>
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	80	= Total Cover		
Herb Stratum (Plot size: <u>5 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%		Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Woody Vine Stratum (Plot size: <u>5 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%		Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
2. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet.)
 Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

SOIL

Sampling Point: **X02**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-15	10YR	2/1						Silt Loam	
15-20	10YR	4/2	10YR	5/6	15%	C	M	Silty Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) <p>³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 This profile exhibits hydric soil field indicator A11, Depleted Below Dark Surface, and satisfies the soils criterion.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	<p>Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Neither primary nor secondary wetland hydrology indicators were observed, so the hydrology criterion is not satisfied.

APPENDIX II

REPRESENTATIVE PHOTOGRAPHS



PHOTO 1

Date: 10/04/2018

View of Area 1, south of St. Charles Road, facing south.



PHOTO 2

Date: 10/04/2018

View of Area 1 near Data Point X01, facing southwest.



PHOTO 3

Date: 10/04/2018

View of Area 1, north of St. Charles Road, facing south.



PHOTO 4

Date: 10/04/2018

View of the west bank of Salt Creek, north of St. Charles Road, facing west.



PHOTO 5

Date: 10/04/2018

View of the shoreline facing south.



PHOTO 6

Date: 10/04/2018

View of the floodplain, Area 2, at Data Point X02, facing south.

APPENDIX III

REGULATORY INFORMATION

REGULATORY REQUIREMENTS

U.S. ARMY CORPS OF ENGINEERS

Pursuant to Section 404 of the Clean Water Act, the U. S. Army Corps of Engineers (USACE) has jurisdiction over the placement of fill or dredged material in all jurisdictional waters of the United States. Jurisdictional areas include rivers, streams, tributary waterways, lakes, natural ponds, and wetlands adjacent to these areas. A Section 404 permit must be obtained before placing any fill material within a jurisdictional area.

Wetlands that lack a continuous surface connection through a relatively permanent tributary to traditionally navigable waters are considered isolated wetlands and are not regulated under the Clean Water Act.¹ To be considered relatively permanent a tributary must have continuous flow at least seasonally (typically at least three months). Swales and erosional features are generally not considered to be tributaries or waters of the United States. Ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow are also generally not waters of the U. S. Wetlands adjacent to tributaries and ditches that do not have a relatively continuous flow will be regulated only if they have a significant nexus to traditionally navigable waters. A significant nexus determination will be based on hydrologic and ecological factors.

General permits, including nationwide and regional permits, are designed to expedite the processing of permits for minor non-controversial projects that are similar in nature and of minimal environmental impact. Currently, 52 nationwide permits have been issued. They became effective on March 19, 2017, and will expire on March 18, 2022.

Within the boundaries of the Chicago District, USACE, most NWP's were replaced with the Regional Permit Program (RPP), which were reissued on April 1, 2012 and will expire on April 1, 2017. Category I RPP's will generally authorize impacts of 0.50 acres or less. Category II RPP's will authorize impacts of between 0.50 acres and 1.0 acre. Any projects proposing impacts to High Quality Aquatic Resources will be processed under Category II. Compensatory wetland mitigation, at a ratio of 1.5:1, is required for all projects that impact more than 0.10 acre. Mitigation for impacts to High Quality Aquatic Resources typically is required at a higher ratio (generally 3:1 or greater).

High Quality Aquatic Resources (HQARs) are aquatic areas considered to be regionally critical due to their uniqueness, scarcity, and/or value, and other wetlands considered to perform functions important to the public interest, as defined in 33 CFR 320.4(b)(2). These resources include Advanced Identification (ADID) sites, bogs, ephemeral pools, fens, forested wetlands, sedge meadows, seeps, streams rated Class A or B in the Illinois Biological Stream Characterization study, streamside marshes, wet prairies, wetlands supporting Federal or Illinois endangered or threatened species, and wetlands with a floristic quality index of 20 or greater, or mean C-value of 3.5 or greater. These areas generally are regarded as unsuitable for dredge or fill activities. See Appendix IV for definitions of the wetland types, and criteria used to evaluate the presence of HQARs during wetland delineations.

¹ December 2, 2008, USEPA and Department of the Army Joint Memorandum, Clean Water Act Jurisdiction Following the U. S. Supreme Court Decision in *Rapanos v. United States* and *Carabell v. United States*.

Wetland impacts greater than 1.0 acre will require authorization under an individual permit (IP), which requires greater scrutiny of the proposed project by the USACE and other concerned government agencies, and a comment period from the general public.

DUPAGE COUNTY ORDINANCE

Pursuant to the 2013 *DuPage County Countywide Stormwater and Flood Plain Ordinance* (Ordinance), any development that affects a special management area (i.e., floodplain, wetland, wetland buffer, or waterway buffer) requires a Stormwater Management Permit. Jurisdictional wetland determinations for review under the ordinance are made following the methods given in the 1987 *Corps of Engineers Wetlands Delineation Manual*. Wetland delineations conducted in DuPage County do not rely on federal jurisdiction, so both adjacent and isolated wetlands are regulated. Field verification of wetland delineations is conducted by the DuPage County, or by village staff in full waiver communities.

All delineated wetlands are to be classified as critical or regulatory wetlands according to the criteria defined in Section 15-85 of the Ordinance. If any one of the criteria is satisfied, that wetland is considered Critical and mitigation will be required at a ratio of 3:1. If none of the criteria is satisfied, that wetland is considered Regulatory and mitigation will be required at a ratio of 1.5:1. The assessment criteria are listed and addressed in Appendix V.

Under the DuPage County Ordinance, a narrative description of measures taken to avoid and minimize wetland impacts is required for all wetlands greater than 0.1 acre in size. Development in or affecting a wetland can be initiated only after an applicant demonstrates that there are no practicable alternatives to impacting a wetland. According to Section 15-92 of the Ordinance, a vegetated buffer 50 feet wide is required around all preserved regulatory wetlands and a vegetated buffer 100 feet wide is required around all critical wetlands unless mitigation for buffer functions is provided.

For projects which occur in partial waiver communities, where the wetland review is conducted by the DuPage County Department of Economic Development & Planning (EDP), the Corps of Engineers has issued General Permit (GP) Number 25, *Programmatic General Permit for Activities Requiring Review under Section 404 of the Clean Water Act Within the Established Boundaries of DuPage County, Illinois*. GP 25 authorizes the EDP to conduct technical reviews on behalf of the Corps of Engineers for projects with minimal impacts to the aquatic environment, including wetlands. Upon the completion of the technical review by EDP, the Corps of Engineers will authorize a project in accordance with the General Permit. In full waiver communities, such as Downers Grove, the community engineer has authority under the ordinance "to review and approve all applications for development in all areas under its jurisdiction." (§15-31.3 of the County Ordinance).

APPENDIX IV

DELINEATION METHODS AND FLORISTIC ANALYSIS

WETLAND DELINEATION METHODS

The site was field-inspected and plant species lists were recorded to document the vegetation types present. A wetland indicator status is assigned to each plant species based on a regional list published by the U.S. Army Corps of Engineers in 2016. The categories are based on the estimated probability that a species would be naturally encountered in a wetland. Under the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest Region*, the area is considered to be dominated by hydrophytic vegetation and representative of a wetland plant community by one of two methods, the dominance test or the prevalence index. The dominance test is satisfied if greater than 50% of the dominant plant species in a given area have a wetland indicator status of FAC, FACW, or OBL. The prevalence index assigns a numeric value to the wetland indicator status, and uses a weighted-average of the wetland indicator status of all plant species present in the sampling area. A wetland plant community is present if the prevalence index is less than 3.0.

Plant Wetland Indicator Status Categories

Indicator Category	Symbol	Indicator Definition
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability greater than 99%) in wetlands under natural conditions, but which may also occur rarely in non-wetlands.
Facultative Wetland Plants	FACW	Plants that usually occur in wetlands (estimated probability 67% to 99%), but occasionally are found in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that usually occur in non-wetlands (estimated probability 67% to 99%) but occasionally are found in wetlands.
Obligate Upland Plants	UPL	Plants that occur almost always (estimated probability greater than 99%) in non-wetlands under natural conditions, but which may also occur rarely in wetlands.

In addition to being dominated by hydrophytic vegetation, each suspect wetland must also exhibit hydric soils and wetland hydrology. As defined in the Federal Register (*Federal Register, Volume 59: July 13, 1994*), "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." According to the National Technical Committee for Hydric Soils, documentation of the presence or absence of a hydric soil can only be determined through on-site investigation, not strictly by its classification of an area on soil survey maps. Soils are identified as hydric in the field if they possess certain indicators, as defined in the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest Region*. These field indicators are a regionally specific subset of the field indicators described in the *Field Indicators of Hydric Soils in the United States* (Version 8.0; NRCS, 2016). The absence of a field indicator in a soil does not exclude that soil from

being classified as hydric. Soil series, soil color, the presence of mottling or gleying, and depth to water table are determined and recorded in the field. These features, when present, may indicate a hydric soil when hydric soil field indicators are absent.

Determinations of hydrology are based on observations wetland hydrology indicators. There are two types of indicators, primary indicators and secondary indicators. A determination of wetland hydrology requires the presence of one primary indicator or two secondary indicators. Hydrology indicators are placed into four groups, these being observations of surface water or saturated soils, evidence of recent inundation, evidence of recent soil saturation, or evidence of other site conditions or data. A listing of the wetland hydrology indicators is provided in the table below.

Indicator	Category	
	Primary	Secondary
Group A – Observation of Surface Water or Saturated Soils		
A1 – Surface water	X	
A2 – High water table	X	
A3 – Saturation	X	
Group B – Evidence of Recent Inundation		
B1 – Water marks	X	
B2 – Sediment deposits	X	
B3 – Drift deposits	X	
B4 – Algal mat or crust	X	
B5 – Iron deposits	X	
B7 – Inundation visible on aerial imagery	X	
B8 – Sparsely vegetated concave surface	X	
B9 – Water-stained leaves	X	
B13 – Aquatic fauna	X	
B14 – True aquatic plants	X	
B6 – Surface soil cracks		X
B10 – Drainage patterns		X
Group C – Evidence of Current or Recent Soil Saturation		
C1 – Hydrogen sulfide odor	X	
C3 – Oxidized rhizospheres along living roots	X	
C4 – Presence of reduced iron	X	
C6 – Recent iron reduction in tilled soils	X	
C7 – Thin muck surface	X	
C2 – Dry-season water table		X
C8 – Crayfish burrows		X
C9 – Saturation visible on aerial imagery		X
Group D – Evidence from Other Site Conditions or Data		
D9 – Gauge or well data	X	
D1 – Stunted or stressed plants		X
D2 – Geomorphic position		X
D5 – FAC-neutral test		X

FLORISTIC QUALITY ASSESSMENT

Plant communities of the site were evaluated with the Floristic Quality Assessment (FQA) methodology, a widely-used technique used for rapid assessment of the floristic quality in a defined area or plant community. In using FQA, the presence of each plant species is recorded, generating a species inventory. This inventory is entered into computer software that was used to generate the species lists used in this report. Floristic quality calculations are also generated that provides a compilation of various floristic quality data, resulting in a determination of the floristic quality of the subject area.

The floristic quality data for an area partially indicates its quality as a natural area (i.e., relative to known or perceived pre-settlement or disturbance conditions). One indicator of the degree of disturbance or floristic quality in an area is the calculated Native Floristic Quality Index (Native FQI). A high Native FQI value indicates a high-quality natural area, but how high the Native FQI must be for an area to be of high quality is a subjective determination. In general, a wetland (or other defined area) with a Native FQI greater than 20.00 from a single observation may be considered a moderately high quality plant community. These areas have a high potential for containing more conservative or high-quality plant species. Therefore, adverse impacts to such areas, especially wetlands and subsequent proposals for compensatory mitigation, may be scrutinized carefully by the regulatory agencies.

A high number of native species with high coefficients of conservatism "C" (a subjective measure of quality based on habitat specificity and relative tolerance to disturbance; weedy species are highly disturbance tolerant, and are ranked lower) will result in a high Native FQI. The C value is based on the relative rarity of a species and/or the resiliency of a species following disturbance. Coefficients of conservatism for native plant species range from 0 for common, weedy species to 10 for rare, highly conservative species. Adventive species are not assigned a C value. Adventive species are non-native species that have entered the Chicago region since European settlement. These species generally do not lend themselves to increased floristic quality, but instead appear after a disturbance. Thus, a high proportion of these species in a given area or community may be an indication of a lower quality plant community.

The wetness coefficient (W, ranging from -5 to +5) refers to the corresponding wetland indicator status (e.g., OBL = obligate wetland species, -5; FAC = facultative species, 0; UPL = upland species, +5) for U.S. Fish and Wildlife Service Region 3 (Illinois, Michigan, Indiana, Missouri, Iowa, Wisconsin, and Minnesota). A wetland indicator status noted in brackets (e.g., [FACW]) is a modification of the Region 3 indicator status to apply locally in the 22-county Chicago region covered by *Plants of the Chicago Region*. The Wetness coefficient is useful in evaluating the general "wetness" affinity of a sampled plant community. If the average indicator status among all species present is in the FAC, FACW, or OBL classes, then the plant community may be considered hydrophytic.

HIGH QUALITY AQUATIC RESOURCES

U.S. Army Corps of Engineers, Chicago District Regional Permit Program

High Quality Aquatic Resources (HQARs) include Advanced Identification (ADID) sites (mapped in Kane, Lake and McHenry Counties), bogs, dune and swale complexes, ephemeral pools, fens, forested wetlands, sedge meadows, seeps, streams rated Class A or B in the Illinois Biological Stream Characterization study, wet prairies, wetlands supporting Federal or Illinois endangered or threatened species, and wetlands with a floristic quality index of 20 or greater, or mean C-value of 3.5 or greater. These definitions are listed below. If a given wetland meets one or more of these definitions, that wetland is considered a HQAR and a Category II Regional Permit or Individual Permit is required.

Advanced Identification (ADID) sites: Aquatic sites that have been identified by the Chicago District and U.S. Environmental Protection Agency, in advance of specific permit requests, as areas generally unsuitable for the disposal of dredged or fill material, because of a variety of factors, including high floristic values, water quality or storage functions, or similar wetland functions performed at elevated levels. ADID sites include various Waters of the U.S., including wetlands. An ADID map for the subject property is included with this report as Figure 3.

Bog: A low nutrient peatland, usually in a glacial depression, that is acidic in the surface stratum and often dominated at least in part by the genus *Sphagnum*.

Dune and Swale Complex: Areas usually parallel to the Lake Michigan shoreline and typified by sandy, linear, upland ridges alternating with low-relief wetland created over time during changes in the Lake Michigan's water levels.

Ephemeral pool: A seasonally inundated depression within a forested wetland or upland community, usually located on a moraine, glacial outwash plain, or in an area shallow to bedrock; also known locally as a "vernal pool." These areas may not be permanently vegetated.

Fen: A peatland, herbaceous (including calcareous floating mats) or wooded, with calcareous groundwater flow.

Forested wetland: A wetland dominated by native woody vegetation with at least one of the following species or genera present: *Carya* spp., *Cephalanthus occidentalis*, *Cornus alternifolia*, *Fraxinus nigra*, *Juglans cinerea*, *Nyssa sylvatica*, *Quercus* spp., *Thuja occidentalis*, *Betula nigra*, *Betula alleghaniensis*, *Betula papyrifera*, *Fagus grandifolia*.

Sedge meadow: A wetland dominated by at least one of the following genera: *Carex*, *Calamagrostis*, *Cladium*, *Deschampsia*, *Eleocharis*, *Rynchospora*, *Scleria*, or *Eriophorum*.

Seep: A wetland, herbaceous or wooded, with saturated soil or inundation resulting from the diffuse flow of groundwater to the surface stratum. [Seeps typically occur on slopes because of blocked vertical infiltration.]

Streams rated A or B in the Illinois Biological Stream Characterization study: The historical Class A and B rating system was replaced with the new Illinois Department of Natural Resources stream classification system that can be found at:

<https://www.dnr.illinois.gov/conservation/BiologicalStreamratings/Pages/default.aspx>

Wet prairie: A wetland dominated by native graminoid species with a diverse indigenous forb component that is seasonally saturated and/or temporarily inundated and may resemble a fen in its best development. Species found in a high quality wet prairie include at least one of the following: *Calamagrostis canadensis*, *Spartina pectinata*, *Aster puniceus firmus*, *Beckmannia syzigachne*, *Chelone glabra*, *Eleocharis wolfii*, *Lysimachia quadrifolia*, *Oenothera perennis*, *Oenothera pilosella*, *Pedicularis lanceolata*, and *Solidago ohioensis*.

Wetlands Supporting Federal or Illinois Endangered or Threatened Species: An Agency Action Report is routinely requested from the Illinois Department of Natural Resources (IDNR) and from the U.S. Fish and Wildlife Service (USFWS) for wetland delineations. These reports indicate the likelihood of listed species (that is, those species considered legally protected as threatened or endangered) being found near or on a subject property, or possible encroachment into protected natural area reserves. If a listed species record is indicated for the site, an endangered and threatened species investigation may be required to evaluate the actual presence or absence of the species in question. This inquiry is preliminary and does not preclude the presence of otherwise unrecorded listed species.

Wetlands with a Floristic Quality Index of 20 or greater or a mean C-value of 3.5 or greater: Plant species inventories collected during wetland delineations are used to generate floristic quality values using the Floristic Quality Assessment method published in *Plants of the Chicago Region* (Swink and Wilhelm, 1994). These tables are included in this report for each of the areas identified as wetland.

STREAM CLASSIFICATION WITHIN THE CHICAGO DISTRICT

The historical Class A and B rating system was replaced with the new Illinois Department of Natural Resources stream classification system that can be found at:

<https://www.dnr.illinois.gov/conservation/BiologicalStreamratings/Pages/default.aspx>

APPENDIX V

DUPAGE COUNTY WETLAND ASSESSMENT

Applicant: V3 Companies
Contact: Alicia Metzger
Address: 7325 Janes Avenue
Woodridge, IL 60517

IDNR Project Number: 1903743
Date: 10/08/2018
Alternate Number: 18259, 1603999

Project: St. Charles Road Bridge Over Salt Creek
Address: St. Charles Road and Kingery Highway, Villa Park

Description: The project proposes to replace the bridge.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Consultation is terminated. This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Termination does not imply IDNR's authorization or endorsement.

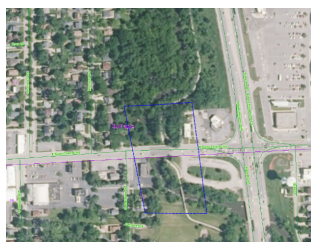
Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: DuPage

Township, Range, Section:

39N, 11E, 3
39N, 11E, 10



IL Department of Natural Resources Contact

Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction

IL Environmental Protection Agency
Bureau of Water Quality
1021 N Grand Ave East
PO Box 19276
Springfield, Illinois 62794

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

U.S. FISH AND WILDLIFE SERVICE: SECTION 7 CONSULTATION

Project: St. Charles Road Bridge Over Salt Creek, Villa Park, DuPage County, Illinois (#18259)

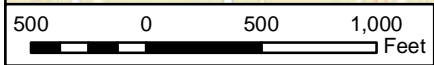
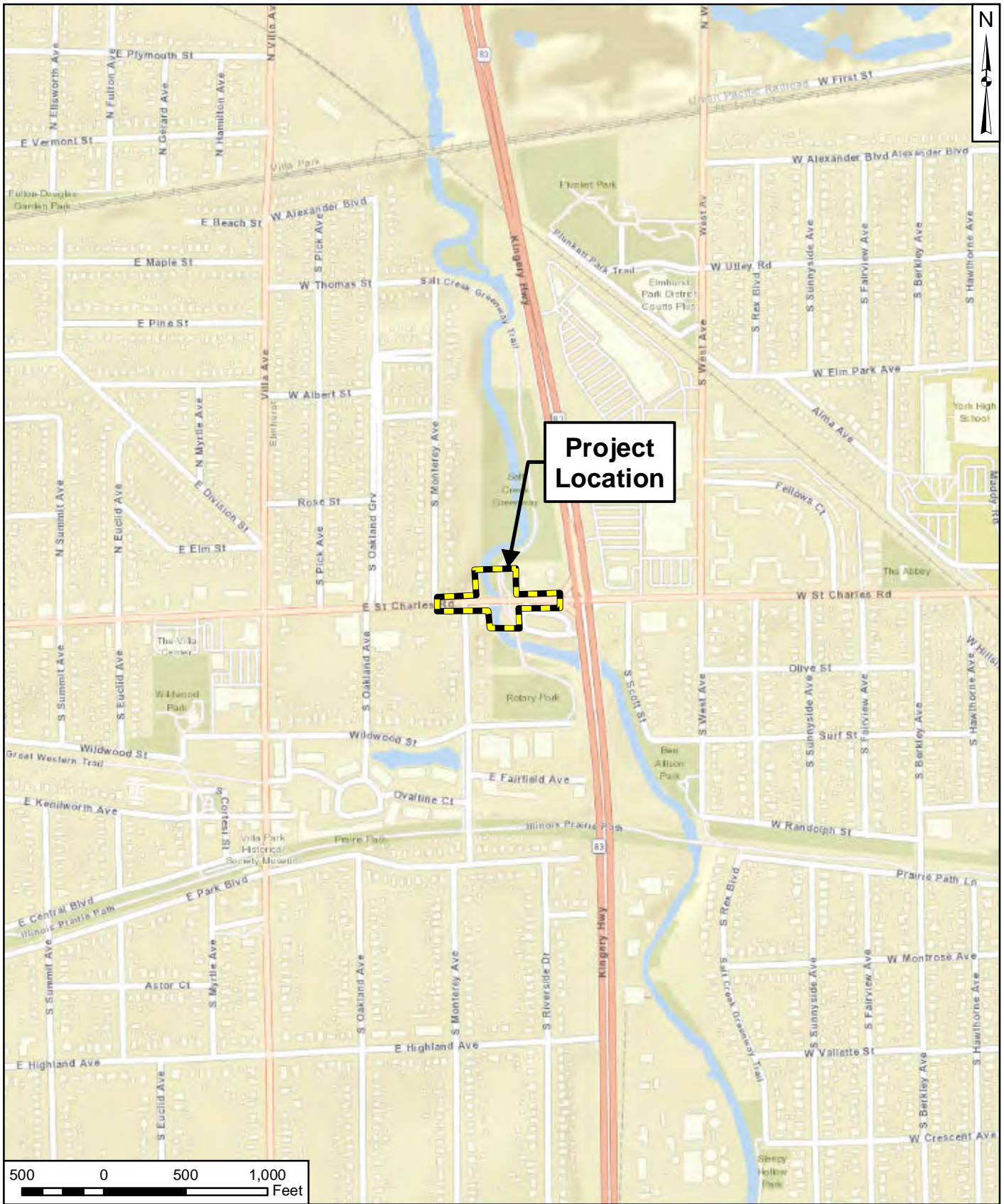
Analysis conducted by: Alicia Metzger, V3 Companies, October 4, 2018


Site Description: The project area includes Salt Creek, a Waters of the U.S. and adjacent wooded uplands.

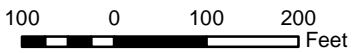
SPECIES	STATUS	HABITAT	SUITABLE HABITAT PRESENT?	CONCLUSION
Eastern prairie fringed orchid (<i>Platanthera leucophaea</i>)	Threatened	Mesic prairies to wetlands such as sedge meadows, marsh edges, and bogs with full sun and little or no woody encroachment.	No, suitable habitat is not present. The project area does not have any prairies or wetlands.	Species and habitat not present. No further consultation is required.
Mead's milkweed (<i>Asclepias meadii</i>)	Threatened	Mesic to dry mesic upland tallgrass prairie or glade habitat adapted to drought and fire. Persists in stable late-successional prairie.	No, suitable habitat is not present. The project area does not have any prairie.	Species and habitat not present. No further consultation is required.
Prairie bush clover (<i>Lespedeza leptostachya</i>)	Threatened	Dry to mesic prairies with gravelly soils.	No, suitable habitat is not present. The project area does not have any prairie.	Species and habitat not present. No further consultation is required.
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Small crevices and cavities in caves, mines, and under the bark of dead and live trees.	No, suitable habitat is not present. There are no large trees in the project area.	Species and habitat not present. No further consultation is required.
Hine's emerald dragonfly (<i>Somatochlora hineana</i>)	Endangered	Spring fed wetlands, wet meadows, and marshes within the Designated Critical Habitat areas.	No, suitable habitat is not present. The project area is not within Designated Critical Habitat.	Species and habitat not present. No further consultation is required.
Leafy-prairie clover (<i>Dalea foliosa</i>)	Endangered	Prairie remnants with thin soil over limestone along the Des Plaines River.	No, suitable habitat is not present. The project area does not have any prairie.	Species and habitat not present. No further consultation is required.
Rusty patched bumble bee (<i>Bombus affinis</i>)	Endangered	Grasslands with flowering plants from April – October, underground rodent cavities or clumps of grasses above ground as nesting sites and undisturbed soil for hibernating queens to overwinter; High Potential Zones	No, suitable habitat is not present. There are no grasslands in the project area.	Species and habitat not present. No further consultation is required.


Conclusion: Species and critical habitat are not present. No further consultation is required.

FIGURES



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: PROJECT LOCATION MAP</p>		
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: ESRI World Street Map</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>	<p>FIGURE: 1</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>		<p>SCALE: See Scale Bar</p>			



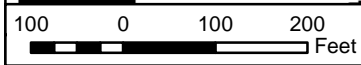
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	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: USGS Topographic Map Elmhurst Quadrangle (1998)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			




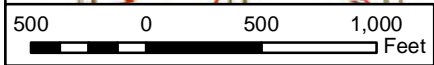
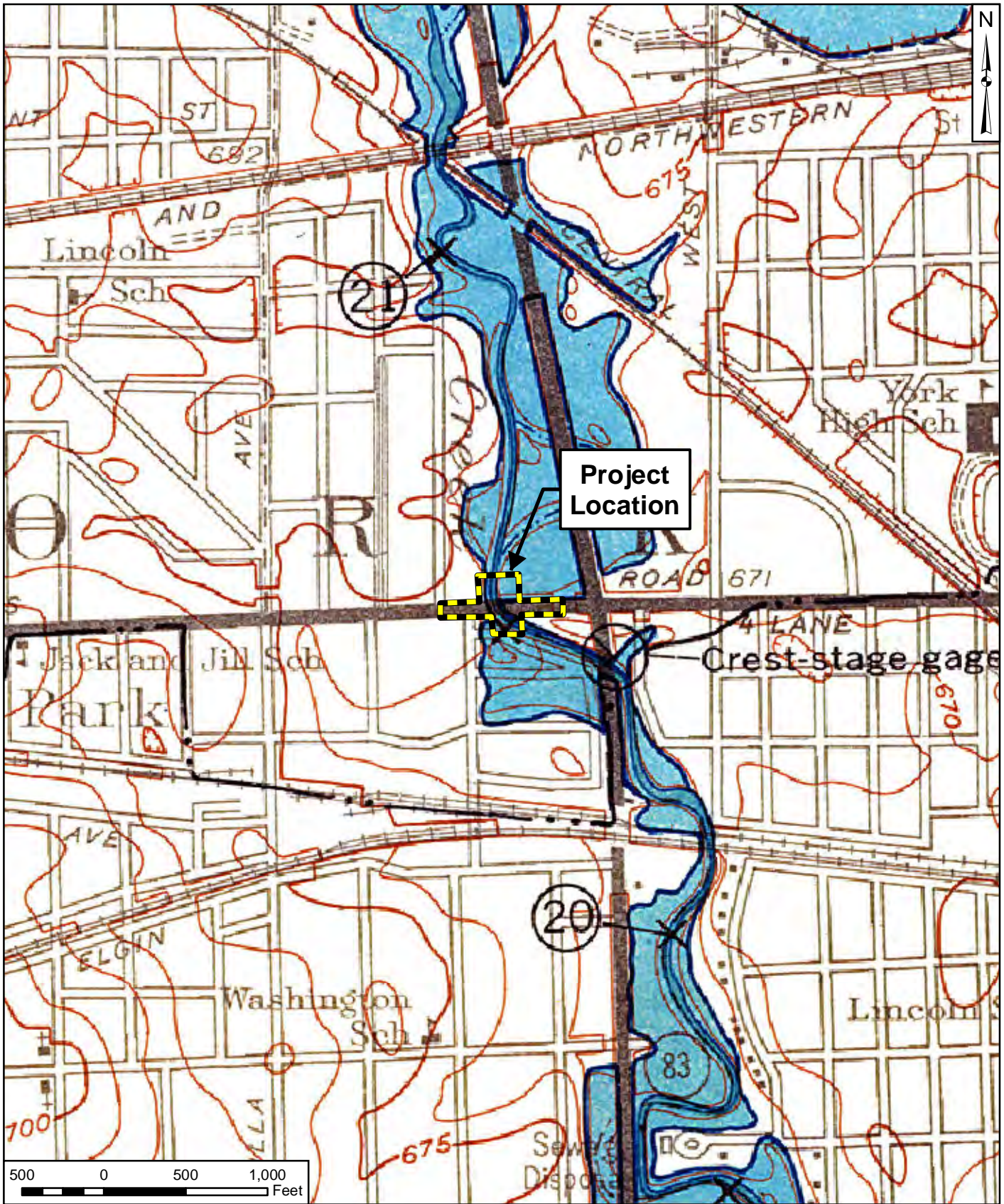
Legend


DuPage County Wetlands

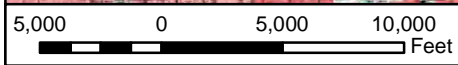
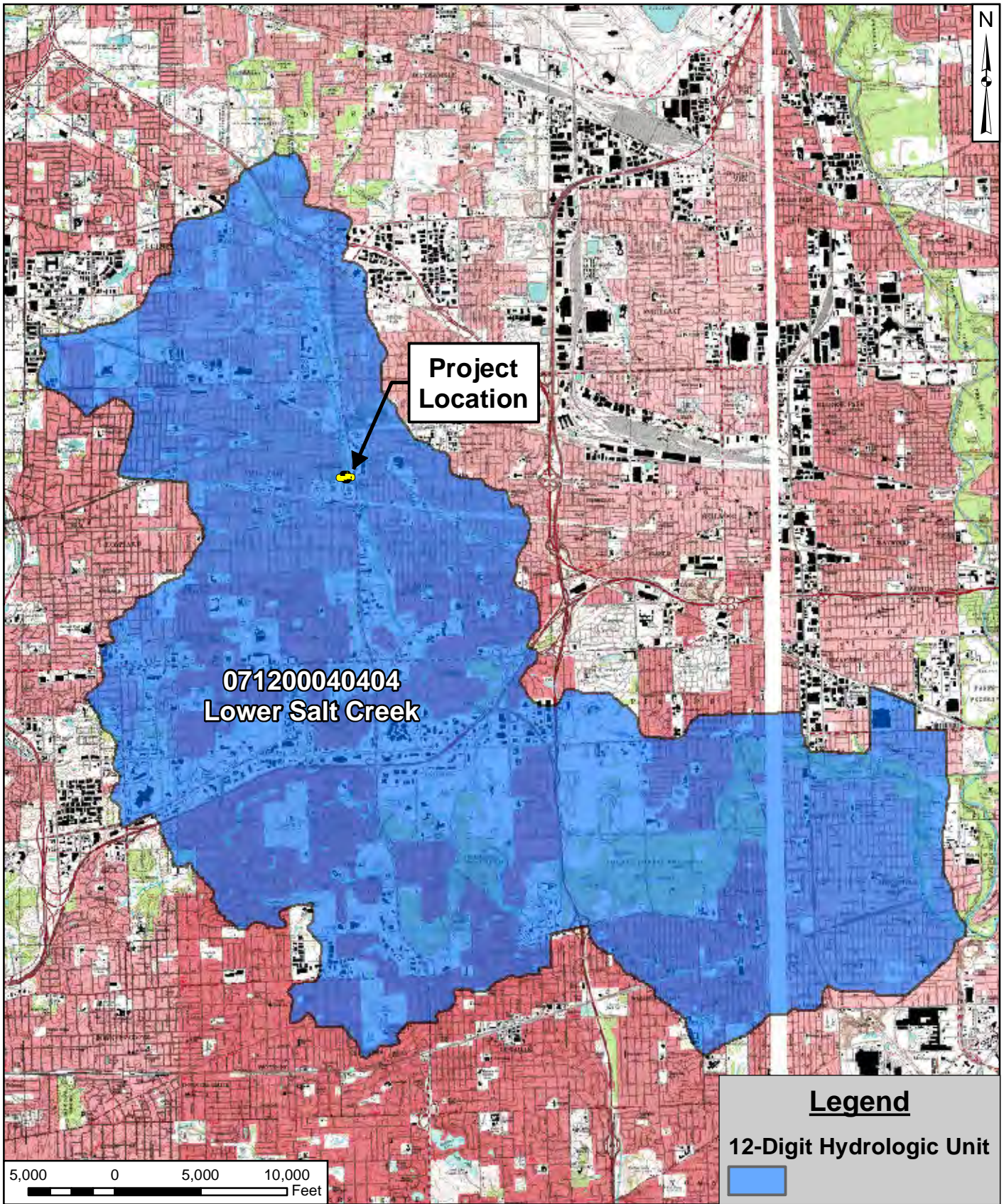
- Critical
- Regulatory



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p> <p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	DUPAGE COUNTY WETLANDS MAP		
	CREATED BY: AMM	DATE: 10/03/18	BASE LAYER: USGS Topographic Map Elmhurst Quadrangle (1998)	TITLE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois	FIGURE: 3
		SCALE: See Scale Bar			




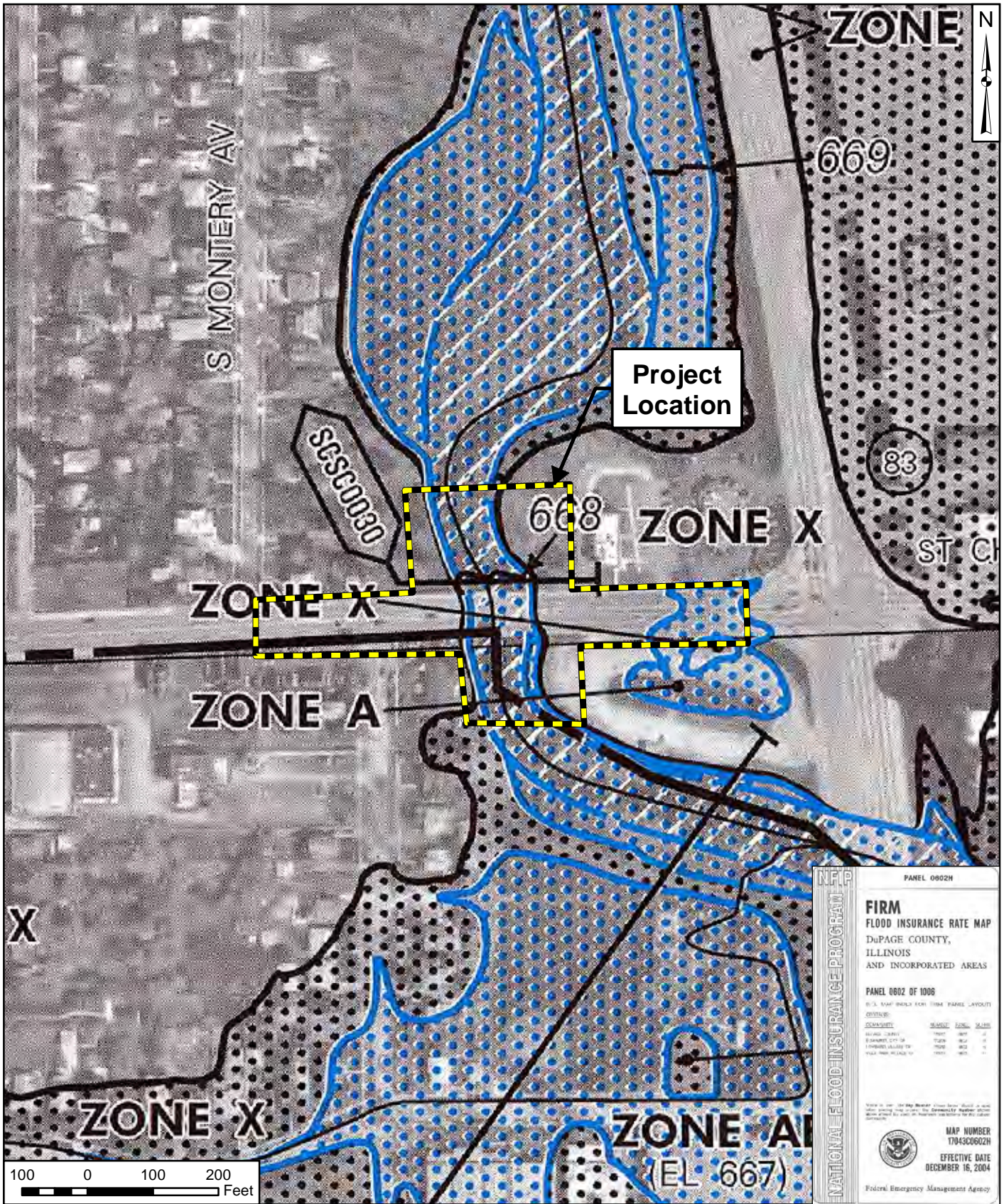
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	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: USGS Hydrologic Atlas Elmhurst Quadrangle (1965)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			



Legend

12-Digit Hydrologic Unit

 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: 12-DIGIT HYDROLOGIC UNIT CODE (HUC) MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: USGS Topographic Map DuPage County, IL (2002)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			



NFP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0802H

FIRM
FLOOD INSURANCE RATE MAP
 DuPAGE COUNTY,
 ILLINOIS
 AND INCORPORATED AREAS

PANEL 0802 OF 1008

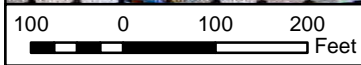
U.S. MAP SCALE FOR 100M PANEL LAYOUT

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EDGEMONT CITY	1:25,000	FEET	1:25,000
INDIANA HEIGHTS TWP	1:25,000	FEET	1:25,000
VILLA PARK VILLAGE	1:25,000	FEET	1:25,000

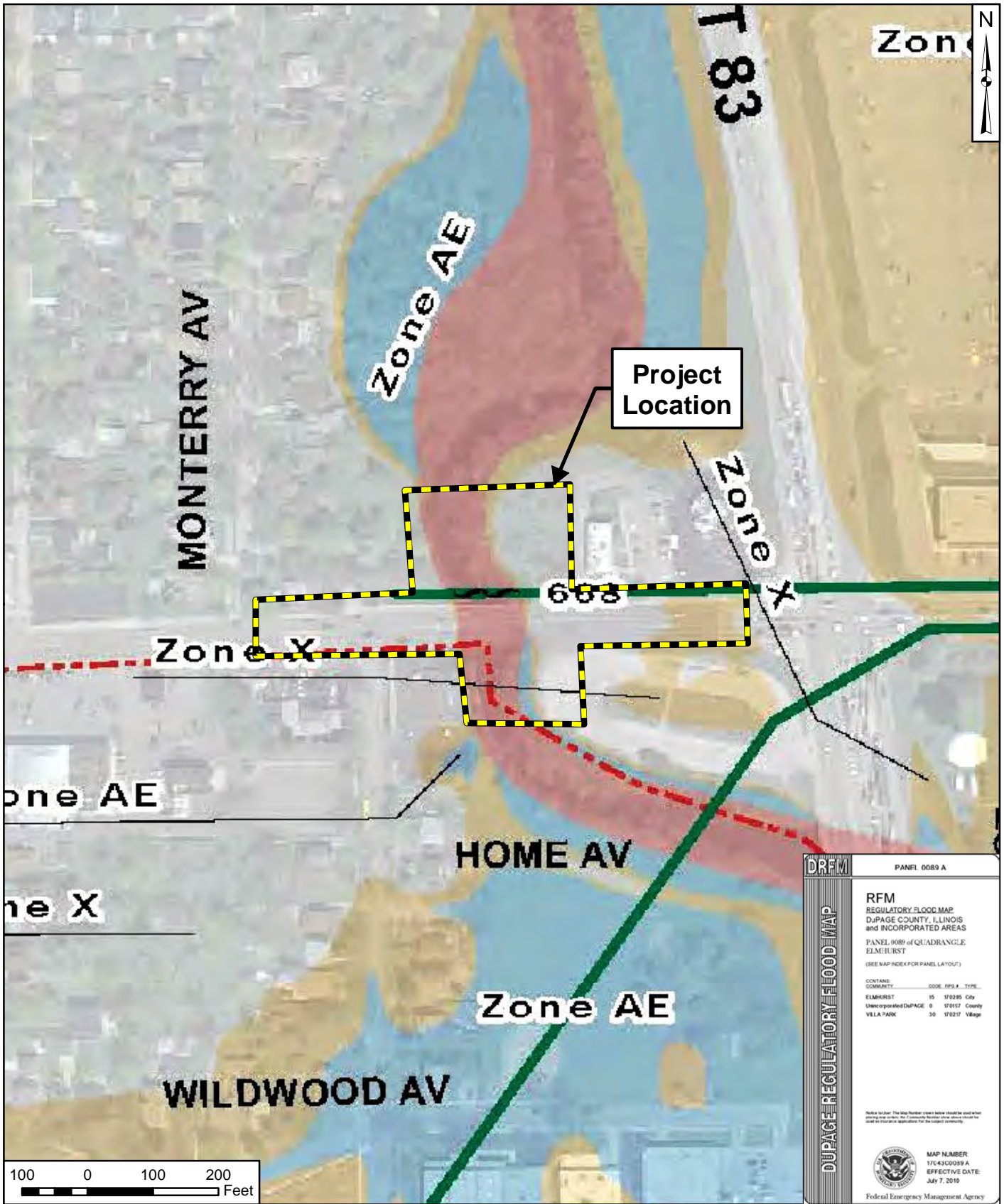
MAP NUMBER
 17043C0602H

EFFECTIVE DATE
 DECEMBER 16, 2004

Federal Emergency Management Agency



 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	TITLE: FEMA FLOOD INSURANCE RATE MAP (FIRM)	
	CREATED BY: AMM	DATE: 10/03/18	BASE LAYER: FEMA FIRM Panel 17043C0602H	SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois
Visio, Vertere, Virtute... "The Vision To Transform with Excellence"	SCALE: See Scale Bar			

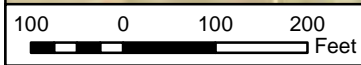



DUPAGE REGULATORY FLOOD MAP	DRFM	PANEL 0089 A															
	RFM REGULATORY FLOOD MAP DUPAGE COUNTY, ILLINOIS and INCORPORATED AREAS																
	PANEL 0089 of QUADRANGLE ELMHURST <small>(SEE MAP INDEX FOR PANEL LAYOUT)</small>																
	<table border="1"> <thead> <tr> <th>CONTAINS</th> <th>CODE</th> <th>FIPS #</th> <th>TYPE</th> </tr> </thead> <tbody> <tr> <td>ELMHURST</td> <td>15</td> <td>170295</td> <td>City</td> </tr> <tr> <td>Unincorporated DUPAGE</td> <td>0</td> <td>170157</td> <td>County</td> </tr> <tr> <td>VILLA PARK</td> <td>39</td> <td>170217</td> <td>Village</td> </tr> </tbody> </table>		CONTAINS	CODE	FIPS #	TYPE	ELMHURST	15	170295	City	Unincorporated DUPAGE	0	170157	County	VILLA PARK	39	170217
CONTAINS	CODE	FIPS #	TYPE														
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Unincorporated DUPAGE	0	170157	County														
VILLA PARK	39	170217	Village														

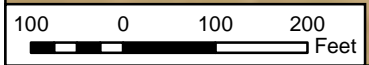
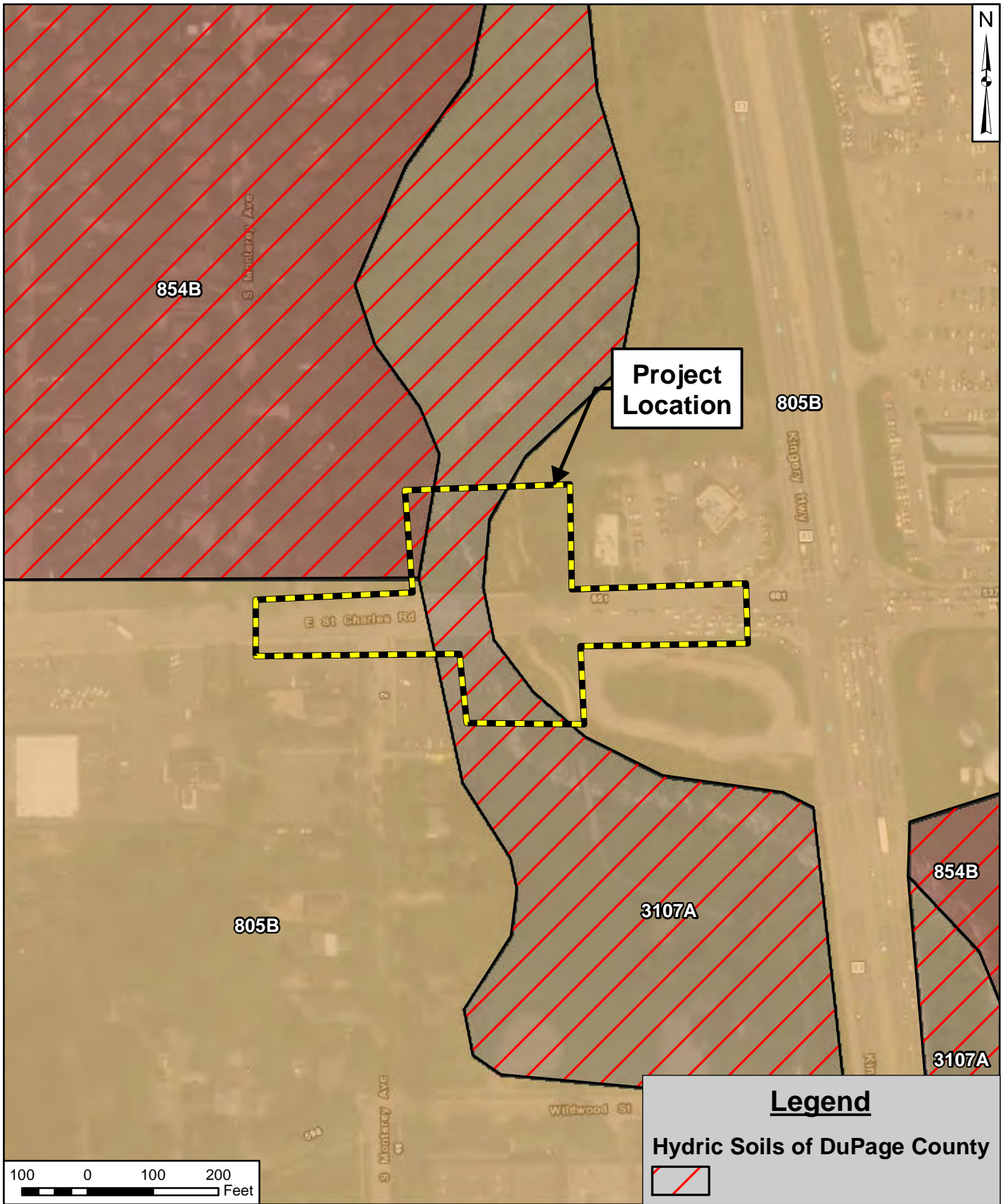
Notice to User: The Map Number shown below should be used in place of the name of the community shown above when used in other applications for the project community.

FEDERAL EMERGENCY MANAGEMENT AGENCY

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EFFECTIVE DATE: July 7, 2010



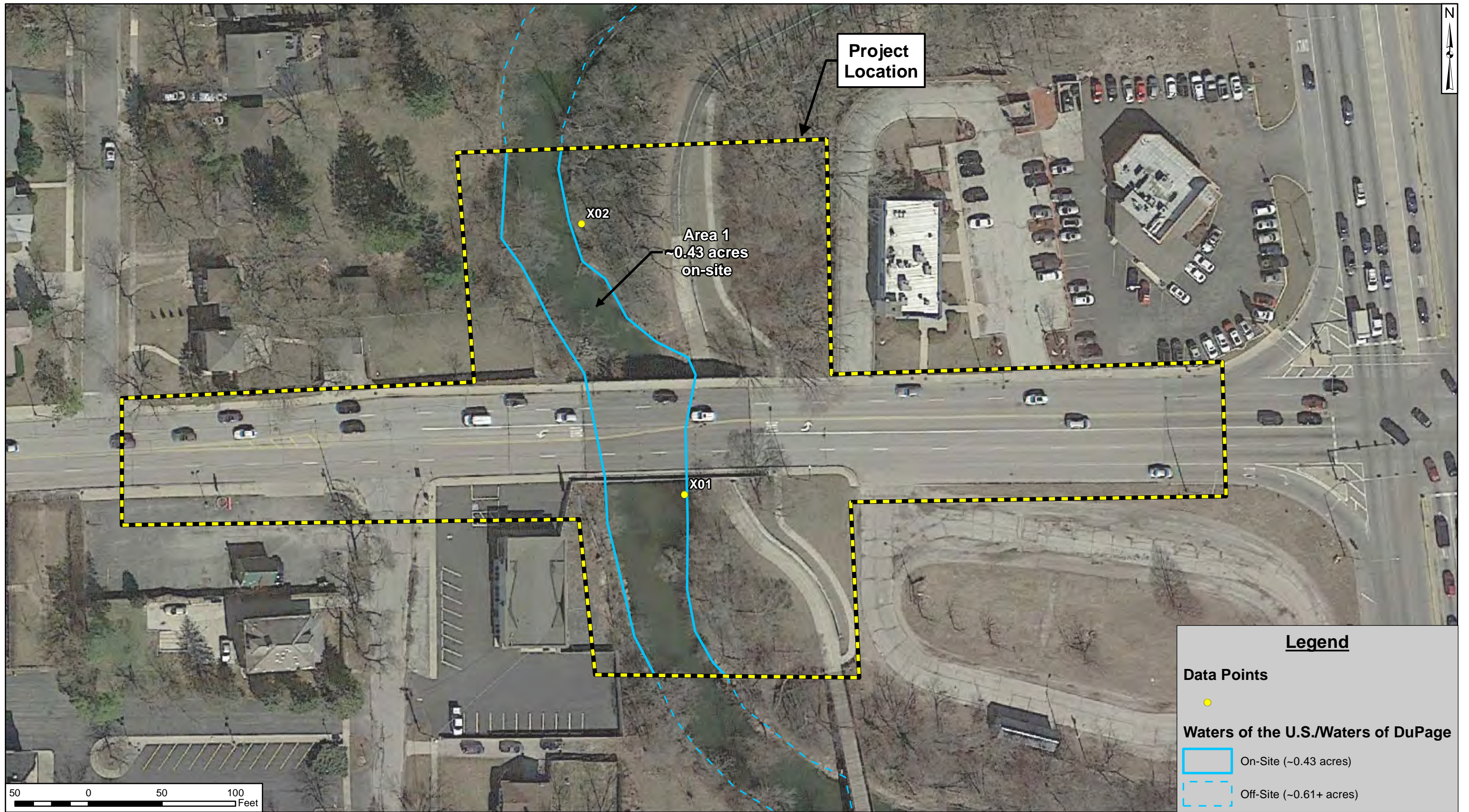
 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p> <p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	DUPAGE COUNTY REGULATORY FLOOD MAP (RFM)		
	CREATED BY: AMM	DATE: 10/03/18	BASE LAYER: DuPage County RFM Panel 17043C0088 A	TITLE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois	FIGURE: 7
	SCALE: See Scale Bar				



Legend

Hydric Soils of DuPage County

 <p>V3 Companies 7325 Janes Avenue Woodridge, Illinois 60517 630.724.9200 phone 630.724.9202 fax www.v3co.com</p>	<p>PROJECT NO.: 18259</p>	<p>CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181</p>	<p>TITLE: SOIL SURVEY OF DUPAGE COUNTY, ILLINOIS (2015) MAP</p>	
	<p>CREATED BY: AMM</p>	<p>DATE: 10/03/18</p>	<p>BASE LAYER: DigitalGlobe Aerial Imagery (2017)</p>	<p>SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois</p>
<p>Visio, Vertere, Virtute... "The Vision To Transform with Excellence"</p>	<p>SCALE: See Scale Bar</p>			




Legend

Data Points

-

Waters of the U.S./Waters of DuPage

- On-Site (~0.43 acres)
- Off-Site (~0.61+ acres)

 Visio, Vertere, Virtute... "The Vision To Transform With Excellence"	PROJECT NO.: 18259	CLIENT: Village of Villa Park 20 S. Ardmore Avenue Villa Park, Illinois 60181	SITE: St. Charles Road Bridge Over Salt Creek Villa Park, Illinois	TITLE: WATERS DELINEATION MAP	FIGURE: 9
	CREATED BY: AMM	BASE LAYER: Google Earth Aerial Imagery (2018)			
	DATE: 11/14/2018				
	SCALE: See Scale Bar				



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

February 6, 2017

Technical Services Division
Regulatory Branch
LRC-2017-00093

SUBJECT: Letter of No Objection for St. Charles Road Bridge Over Salt Creek, Village of Villa Park, DuPage County, Illinois

Vydas Juskelis, Director of Public Works
Village of Villa Park
20 S. Ardmore Avenue
Villa Park, Illinois 60181

Dear Mr. Juskelis:

This is in response to your February 2, 2017 request that the U.S. Army Corps of Engineers issue a letter of no objection for the above-referenced activity. The subject project has been assigned number LRC-2017-00093. Please reference this number in all future correspondence concerning this project.

Following a review of the information you furnished to this office and assuming your project is conducted only as set forth in the information provided, this office has determined that the subject project does not require a Department of the Army (DA) permit to complete the proposed work. The placement of sheet piles around the bridge's concrete piers with no backfill does not constitute a discharge of fill in a Water of the U.S. and is, therefore, not a regulated activity at this location. Please be aware that any unpermitted discharge into an area within the jurisdiction of this office may result in civil or criminal enforcement under the Clean Water Act, 33 U.S.C. Sec. 1319.

This determination is valid for a period of 5 years from the date of this letter and covers only your project as depicted in the attached plans. Soil erosion and sediment controls (SESC) measures shall be implemented at the project site and properly maintained throughout construction of the project. Proper installation and regular maintenance of SESC measures will prevent construction materials from entering downstream locations.

It is your responsibility to obtain any required state, county, or local approvals for impacts to wetland areas not under the Department of the Army jurisdiction. For projects located in DuPage County, please contact the DuPage County Stormwater Management at (630) 682-6724.

This determination is based only on the proposed activity and is not an approved jurisdiction determination for the subject parcel. If you wish to receive an approved jurisdiction determination or have any questions, please contact Julie Rimbault of my staff by telephone at (312) 846-5542 or email at Julie.C.Rimbault@usace.army.mil.

Sincerely,

Kathleen G. Chernich
Chief, East Section
Regulatory Branch

Copy Furnished:

V3 Companies (Scott Brejcha)

Applicant: V3 Companies
Contact: Alicia Metzger
Address: 7325 Janes Avenue
Woodridge, IL 60517

IDNR Project Number: 1903743
Date: 10/08/2018
Alternate Number: 18259, 1603999

Project: St. Charles Road Bridge Over Salt Creek
Address: St. Charles Road and Kingery Highway, Villa Park

Description: The project proposes to replace the bridge.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Consultation is terminated. This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Termination does not imply IDNR's authorization or endorsement.

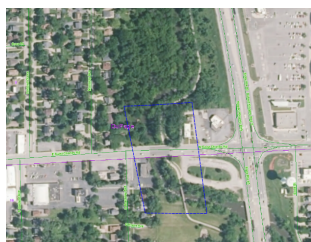
Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: DuPage

Township, Range, Section:

39N, 11E, 3
39N, 11E, 10



IL Department of Natural Resources Contact

Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction

IL Environmental Protection Agency
Bureau of Water Quality
1021 N Grand Ave East
PO Box 19276
Springfield, Illinois 62794

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

U.S. FISH AND WILDLIFE SERVICE: SECTION 7 CONSULTATION

Project: St. Charles Road Bridge Over Salt Creek, Villa Park, DuPage County, Illinois (#18259)

Analysis conducted by: Alicia Metzger, V3 Companies, October 4, 2018

Site Description: The project area includes Salt Creek, a Waters of the U.S. and adjacent wooded uplands.

SPECIES	STATUS	HABITAT	SUITABLE HABITAT PRESENT?	CONCLUSION
Eastern prairie fringed orchid (<i>Platanthera leucophaea</i>)	Threatened	Mesic prairies to wetlands such as sedge meadows, marsh edges, and bogs with full sun and little or no woody encroachment.	No, suitable habitat is not present. The project area does not have any prairies or wetlands.	Species and habitat not present. No further consultation is required.
Mead's milkweed (<i>Asclepias meadii</i>)	Threatened	Mesic to dry mesic upland tallgrass prairie or glade habitat adapted to drought and fire. Persists in stable late-successional prairie.	No, suitable habitat is not present. The project area does not have any prairie.	Species and habitat not present. No further consultation is required.
Prairie bush clover (<i>Lespedeza leptostachya</i>)	Threatened	Dry to mesic prairies with gravelly soils.	No, suitable habitat is not present. The project area does not have any prairie.	Species and habitat not present. No further consultation is required.
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Small crevices and cavities in caves, mines, and under the bark of dead and live trees.	No, suitable habitat is not present. There are no large trees in the project area.	Species and habitat not present. No further consultation is required.
Hine's emerald dragonfly (<i>Somatochlora hineana</i>)	Endangered	Spring fed wetlands, wet meadows, and marshes within the Designated Critical Habitat areas.	No, suitable habitat is not present. The project area is not within Designated Critical Habitat.	Species and habitat not present. No further consultation is required.
Leafy-prairie clover (<i>Dalea foliosa</i>)	Endangered	Prairie remnants with thin soil over limestone along the Des Plaines River.	No, suitable habitat is not present. The project area does not have any prairie.	Species and habitat not present. No further consultation is required.
Rusty patched bumble bee (<i>Bombus affinis</i>)	Endangered	Grasslands with flowering plants from April – October, underground rodent cavities or clumps of grasses above ground as nesting sites and undisturbed soil for hibernating queens to overwinter; High Potential Zones	No, suitable habitat is not present. There are no grasslands in the project area.	Species and habitat not present. No further consultation is required.

Conclusion: Species and critical habitat are not present. No further consultation is required.

Tab 5

Riparian Buffer

No Documents Required

Tab 6

Post Construction Best Management Practices (PCBMPs)

No Documents Required

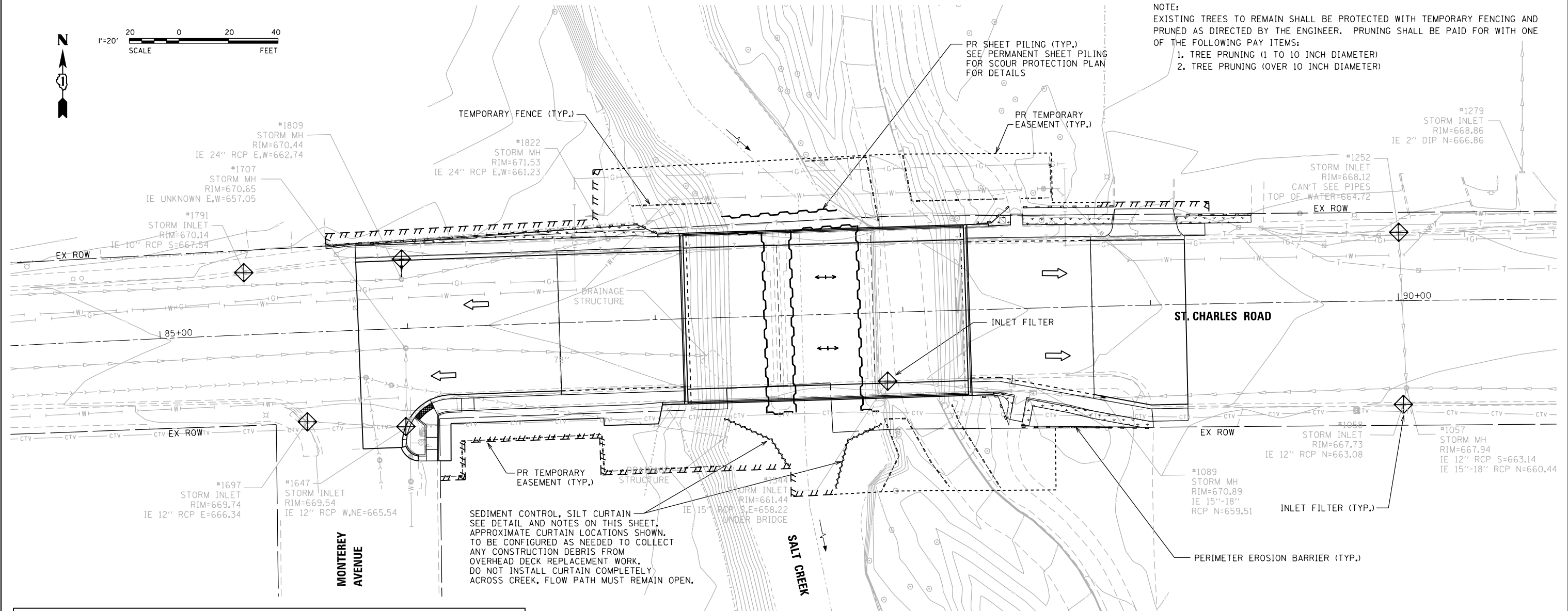
Tab 7

Soil Erosion and Sediment Control

- **Erosion Control & Landscaping Plan**



1"=20'
SCALE
FEET



NOTE:
EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY FENCING AND PRUNED AS DIRECTED BY THE ENGINEER. PRUNING SHALL BE PAID FOR WITH ONE OF THE FOLLOWING PAY ITEMS:
1. TREE PRUNING (1 TO 10 INCH DIAMETER)
2. TREE PRUNING (OVER 10 INCH DIAMETER)

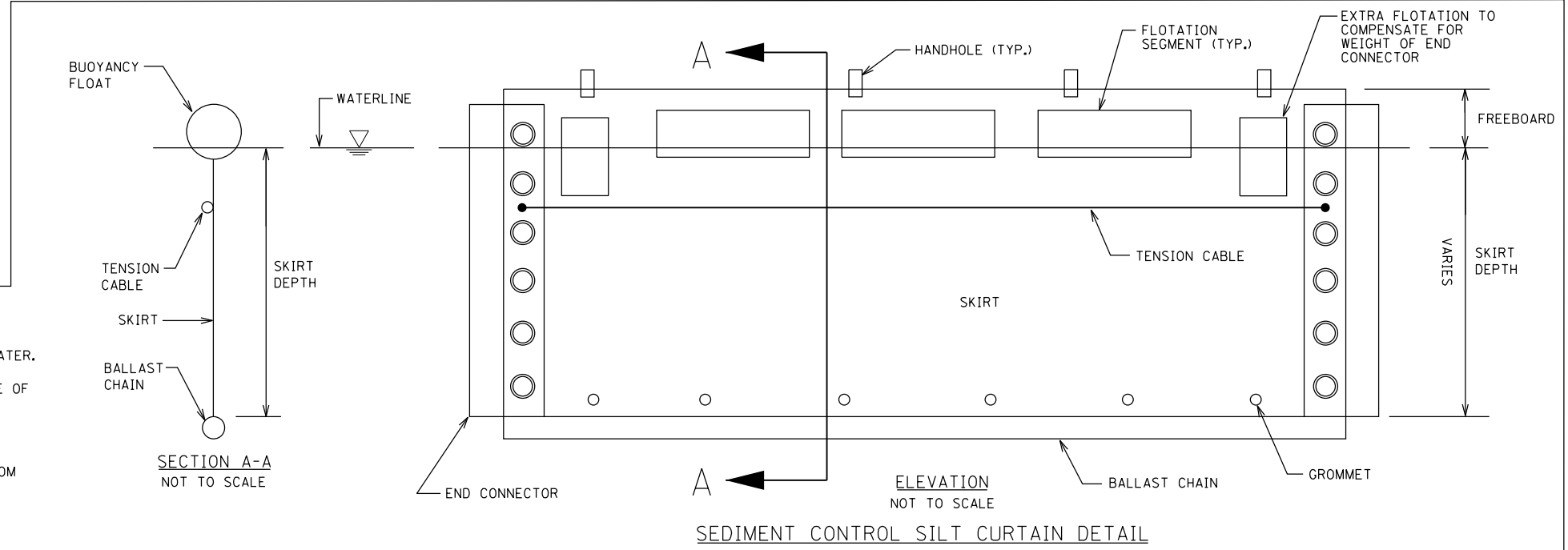
SEDIMENT CONTROL, SILT CURTAIN
SEE DETAIL AND NOTES ON THIS SHEET.
APPROXIMATE CURTAIN LOCATIONS SHOWN.
TO BE CONFIGURED AS NEEDED TO COLLECT
ANY CONSTRUCTION DEBRIS FROM
OVERHEAD DECK REPLACEMENT WORK.
DO NOT INSTALL CURTAIN COMPLETELY
ACROSS CREEK, FLOW PATH MUST REMAIN OPEN.

EROSION CONTROL & LANDSCAPING LEGEND

- INLET FILTER BASKET
- SUMMIT
- SHEET FLOW
- CREEK FLOW DIRECTION
- SHEET PILING
- PERIMETER EROSION BARRIER
- TEMPORARY FENCE
- SEDIMENT CONTROL SILT CURTAIN
- TOPSOIL FURNISH AND PLACE, 6" CLASS 2A SEEDING EROSION CONTROL BLANKET

SEDIMENT CONTROL SILT CURTAIN NOTES:

1. FLOTATION BOOM SHALL BE ANCHORED TO PREVENT DRIFT SHOREWARD OR DOWNSTREAM. ANCHORS SHALL BE INSTALLED ON BOTH SHORE AND STREAM SIDE. BOOMS ARE NOT TO BE INSTALLED ACROSS FLOWING BODY OF WATER.
2. SHORE ANCHORS SHALL CONSIST OF A POST WITH DEADMAN OR APPROVED EQUAL. STREAM ANCHORS SHALL BE OF SUFFICIENT SIZE TO STABILIZE THE BARRIER WITH NUMBER AND SPACING DEPENDENT ON WATERWAY VELOCITIES.
3. FABRIC SECTIONS SHALL BE CONNECTED END TO END WITH MINIMUM 5/8" DIAMETER POLYPROPYLENE ROPE.
4. DESIGN OF BOOM AND ANCHORAGE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BOTTOM OF BOOM SHALL REACH BOTTOM OF WATERWAY USING ONE OR TWO VERTICAL SECTIONS AS REQUIRED.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED. CONTRACTOR SHALL REMOVE THE BOOM AT COMPLETION OF WORK IN A MANNER THAT WILL PREVENT SILTATION OF THE WATERWAY.



SECTION A-A
NOT TO SCALE

SEDIMENT CONTROL SILT CURTAIN DETAIL



V3 Companies
7325 Janes Avenue
Woodridge, IL 60517
630.724.9200 phone
630.724.9202 fax
www.v3co.com

USER NAME = vsjkes
DESIGNED - EIH
DRAWN - EIH
CHECKED - MJR
DATE - 11/16/18

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND LANDSCAPING PLAN

SCALE: 1"=20' SHEET 1 OF 1 SHEETS STA. 84+50.00 TO STA. 90+50.00

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1397	15-00094-00-BR	DUPAGE	#To+	#Cel01
PROJECT: BRM-4003508; JOB: C-91-313-15				
ILLINOIS				

Tab 8

Maps

- **Engineering Plans (included separately)**
- **Excerpts from the 1979 IDOT Engineering Plans for St. Charles Road over Salt Creek bridge widening**

**Excerpts from the 1979 IDOT Engineering Plans for St.
Charles Road over Salt Creek bridge widening**

00104

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Phase I

TYPE	SECTION	COUNTY	TOTAL LENGTH
764	1975-136-W & RS	DuPAGE	1.03
764	76-00045-00-RP	DuPAGE	0.337
764	76-00113-00-RP	DuPAGE	1.474

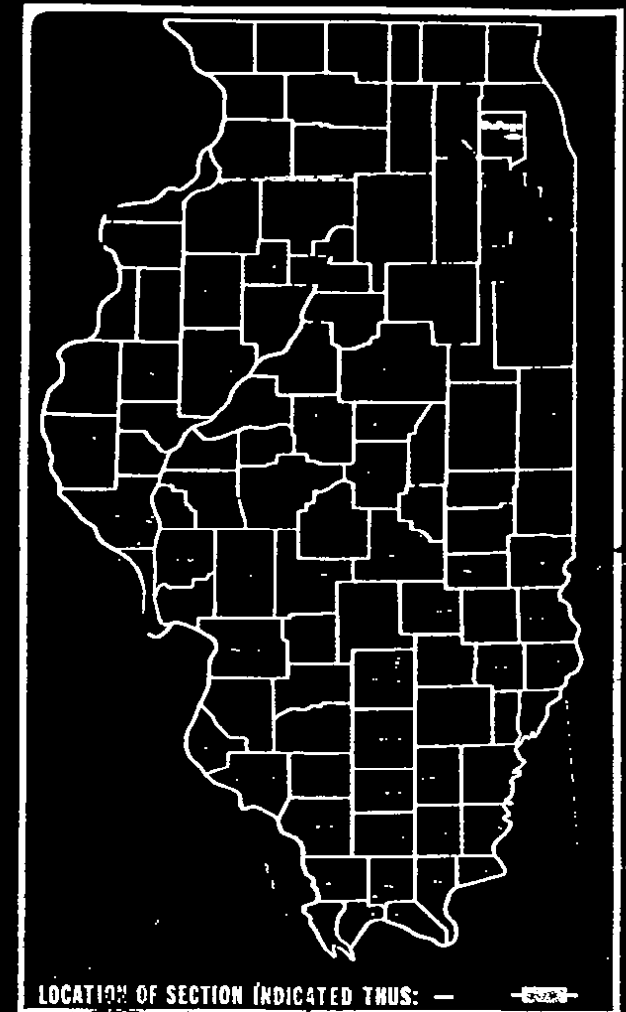
PLANS FOR PROPOSED
FEDERAL AID HIGHWAY

SEE SHEET 2 FOR INDEX OF SHEETS & STATE STANDARDS

SCALES	
PLAN	1 INCH = 50 FEET
PROFILE HORIZ.	1 INCH = 50 FEET
PROFILE VERT.	1 INCH = 5 FEET
CROSS-SECTIONS	
HORIZ.	1 INCH = 5 FEET
VERT.	1 INCH = 5 FEET

STATE OF ILLINOIS SECTION 1975-136-W & RS, BY
VILLAGE OF VILLA PARK SECTION 76-00045-00-RP
CITY OF ELMHURST SECTION 76-00113-00-RP

DuPAGE COUNTY, ILLINOIS
PROJECT M-5003(27)
ROADWAY IMPROVEMENTS



ST. CHARLES ROAD - FAU RTE. 1397 - NET LENGTH 3,732.00 FEET OR 0.707 MILES OR 1.137 KILOMETER
VILLA AVENUE - FAU RTE. 2652 - NET LENGTH 1,106.00 FEET OR 0.209 MILE OR 0.337 KILOMETER
NET LENGTH OF PROJECT = 4,838.00 FEET OR 0.916 MILE OR 1.474 KILOMETER
TOWNSHIP 39 NORTH, RANGE 11 EAST OF THE THIRD PRINCIPAL MERIDIAN
JOB NO. C-91-262-75

*DRAWER
70*



LIMIT OF IMPROVEMENTS
STA. 14+50.00

PROJECT M-5003 (27)
ENDS STA. 97+90.00

LIMIT OF IMPROVEMENTS
STA. 2+32.00



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROVED: *3-22-75*
Tom H. Chang
LOCAL AGENCY REPRESENTATIVE

PASSED: *March 28, 1975*
Sam H. ...
DISTRICT ENGINEER OF LOCAL ROADS AND STREETS

APPROVED: *March 28, 1975*
August C. Zipp...
DISTRICT ENGINEER

DESIGN DESIGNATION
ST. CHARLES ROAD - 2244 (93) TS-2 1.18 (B-15)
VILLA AVENUE - 971 (93) TS-3 0.51 (B-15)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

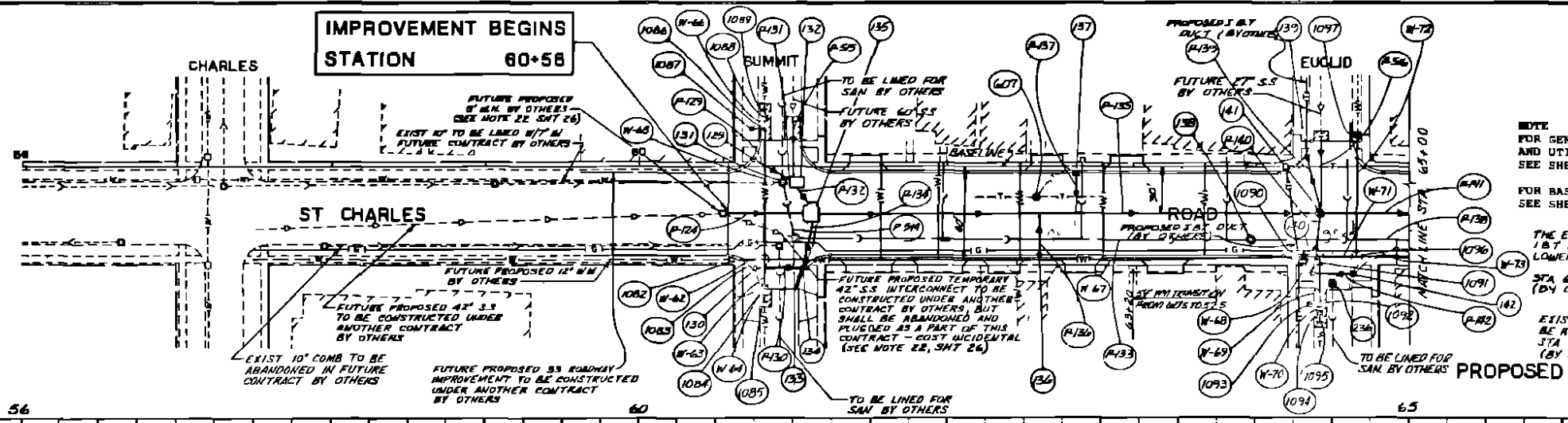
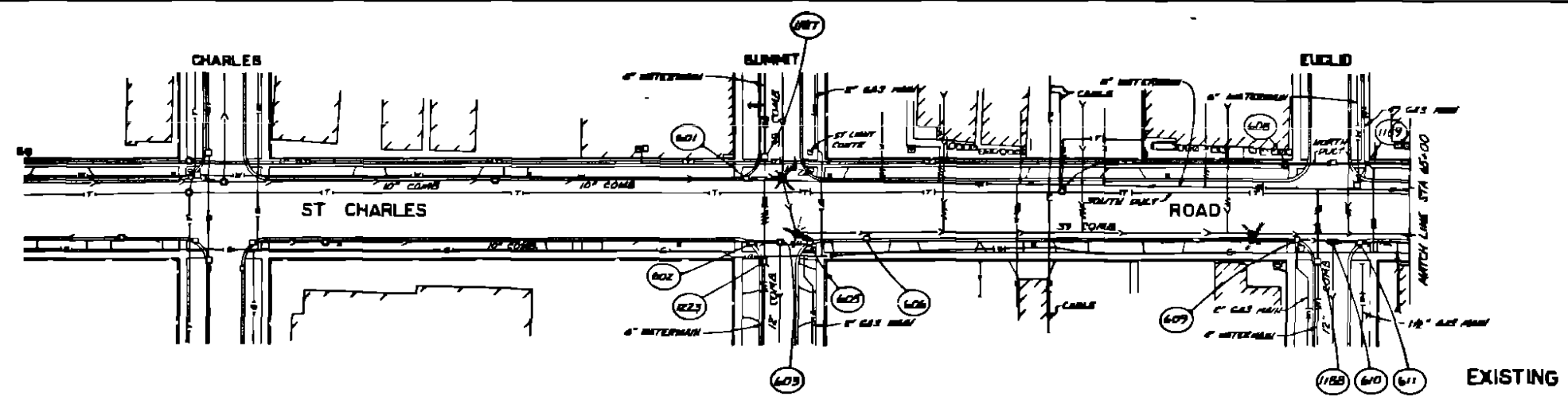
APPROVED _____
DIVISION ADMINISTRATOR

DATE _____

00104-1

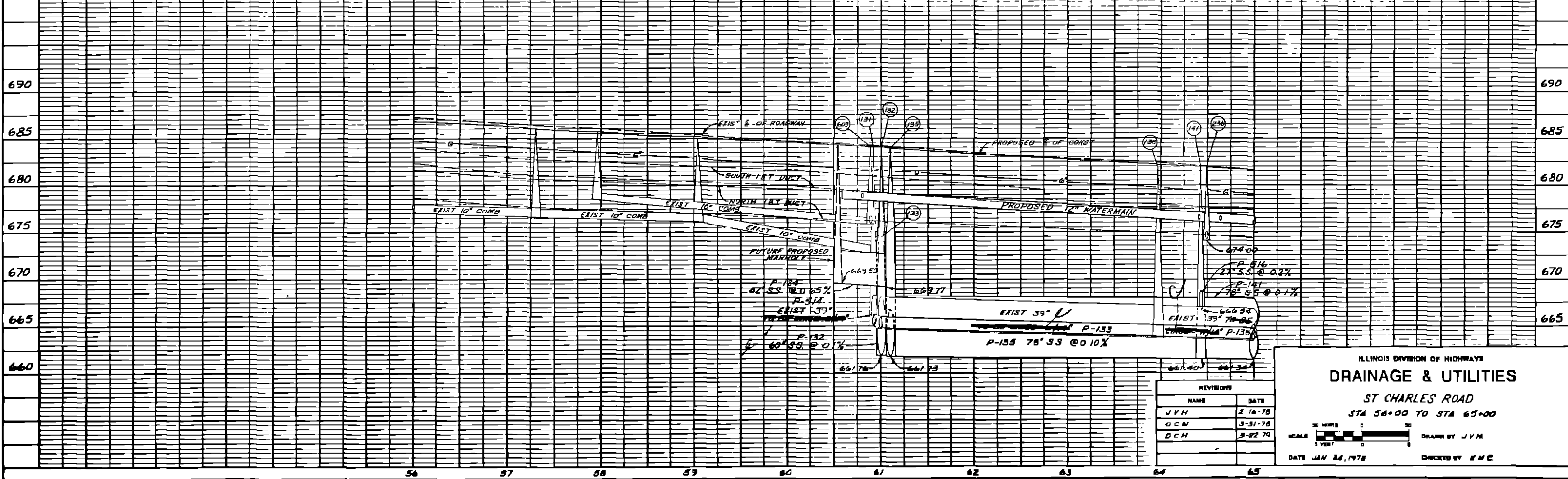
00104

DATE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8-10-78	136-137	Du PAGE	105	27
STA. 56+00		TO STA. 65+00		
FED. ROAD DIST. NO.		ILLINOIS		



NOTE
FOR GENERAL DRAINAGE
AND UTILITY NOTES
SEE SHEET NO 24
FOR BASELINE INFO
SEE SHEETS 14 & 15
THE EXISTING SOUTH
18\"/>

BENCHMARK 117
N.W. BOLT IN NEW CONCRETE SIGN
BASE
STA 61+19 ± 75'R. EL. 684.48



REVISIONS	
NAME	DATE
JVH	2-16-78
OCM	3-31-78
DCH	3-22-79

ILLINOIS DIVISION OF HIGHWAYS
DRAINAGE & UTILITIES
ST CHARLES ROAD
STA 56+00 TO STA 65+00

SCALE: 1" = 10' HORIZ, 1" = 5' VERT

DATE JAN 24, 1978

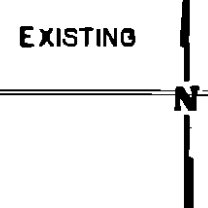
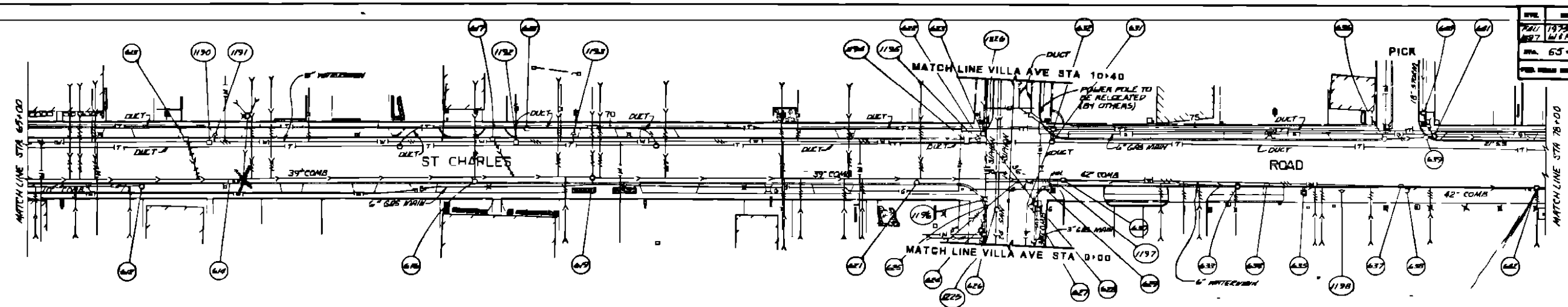
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CHECKED BY RMC

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STANDARD PAPER 24 X 36 IN.
NO. 2001-1

00104-25

00104

TYPE	SECTION	QUANTITY	TOTAL	REMARKS
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WRT	1645, 84	DURPAGE	105	28
WVA	65+00	TO STA.	78+00	
WVA	DRAIN	ILLINOIS	DR. AND PROJECT (1) 2003 (2)	

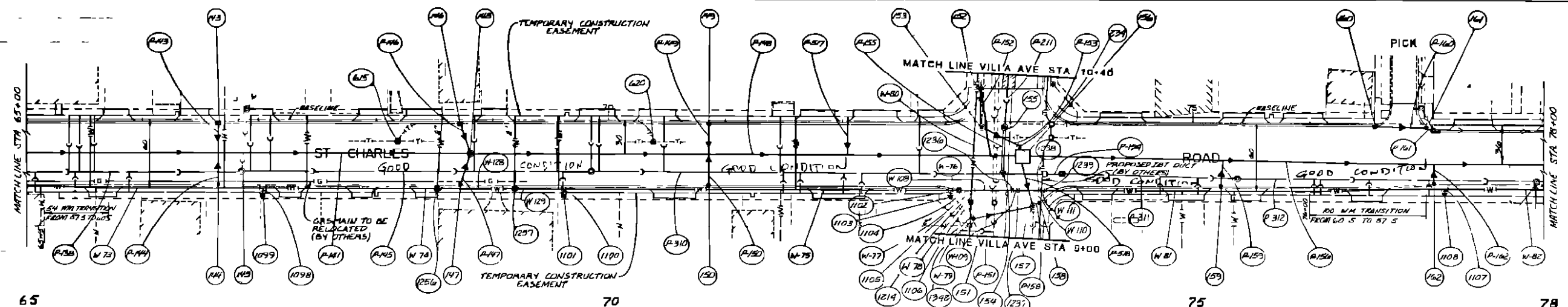


NOTE
FOR GENERAL DRAINAGE
AND UTILITY NOTES
SEE SHEET NO 26

FOR BASELINE INFO
SEE SHEETS 14 & 15

THE EXISTING SOUTH
18\"/>

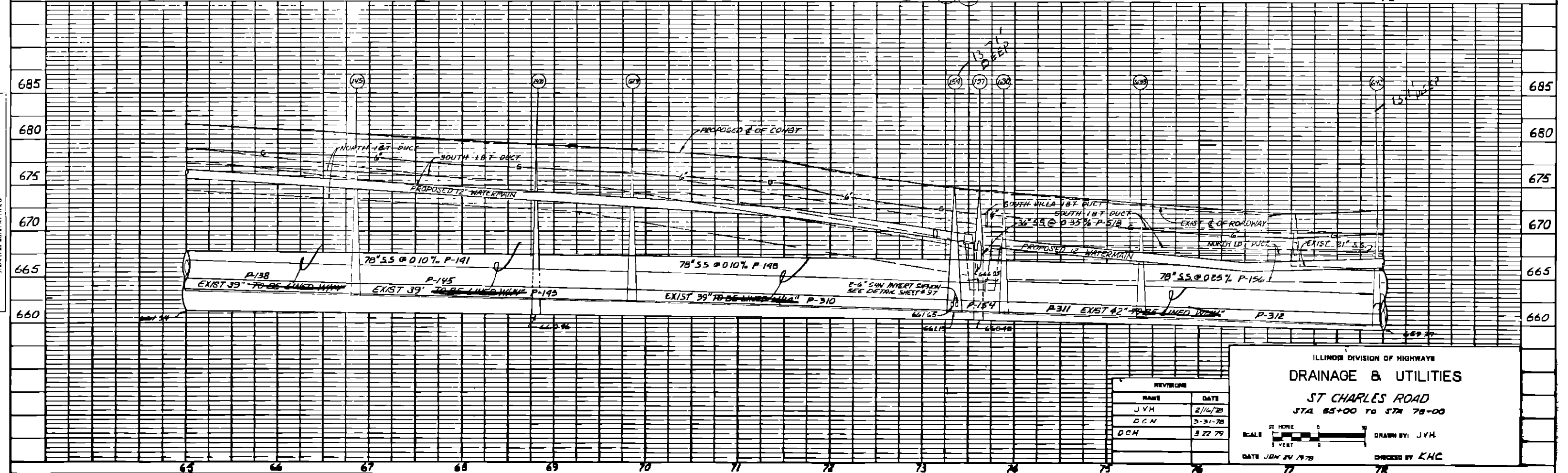
PLAN
DATE 11-1-78
BY J.V.H.
CHECKED D.C.N.
SCALE AS SHOWN



BENCHMARK #18
X-CUT IN CONCRETE SIGN BASE
(ELMHIRST FEDERAL)

STA 69+10 ±10' L EL 674

PROFILE
DATE 11-1-78
BY J.V.H.
CHECKED P.L.G.
SCALE AS SHOWN



REVISION	DATE
J.V.H.	2/16/78
D.C.N.	3-31-78
D.C.N.	5-22-79

ILLINOIS DIVISION OF HIGHWAYS
DRAINAGE & UTILITIES
ST CHARLES ROAD
STA 65+00 TO STA 78+00

SCALE
HORIZONTAL 1" = 40'
VERTICAL 1" = 5'

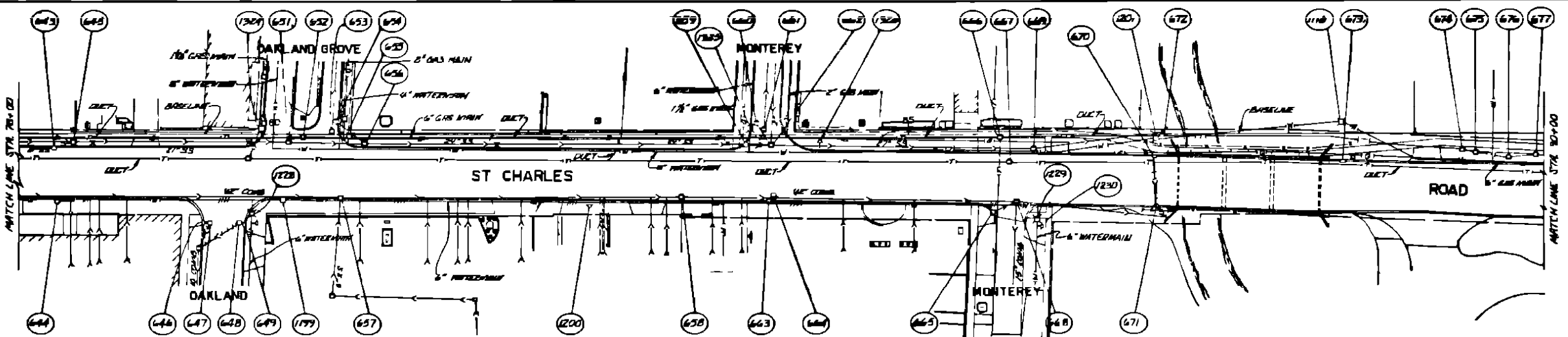
DATE JAN 24 1978
DRAWN BY J.V.H.
CHECKED BY K.H.C.

PLATE 1 PLAN PROFILE 1 & 2
DRAINAGE & UTILITIES
ST CHARLES ROAD

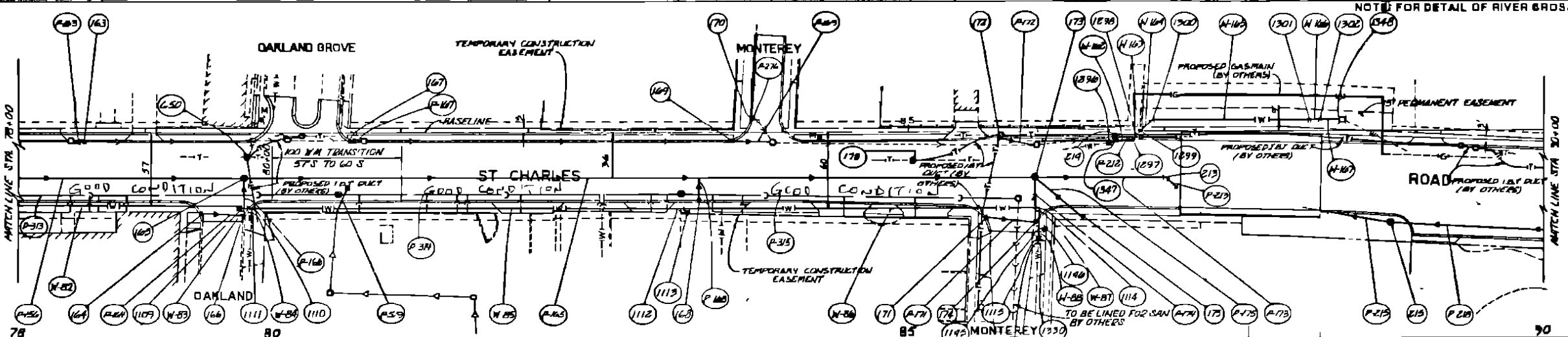
00104-26

00104

DATE	BY	REVISION
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12/14/78	DCN	2. 103
3/22/79	DCN	3. 29
4/4/79	JYH	4. 29



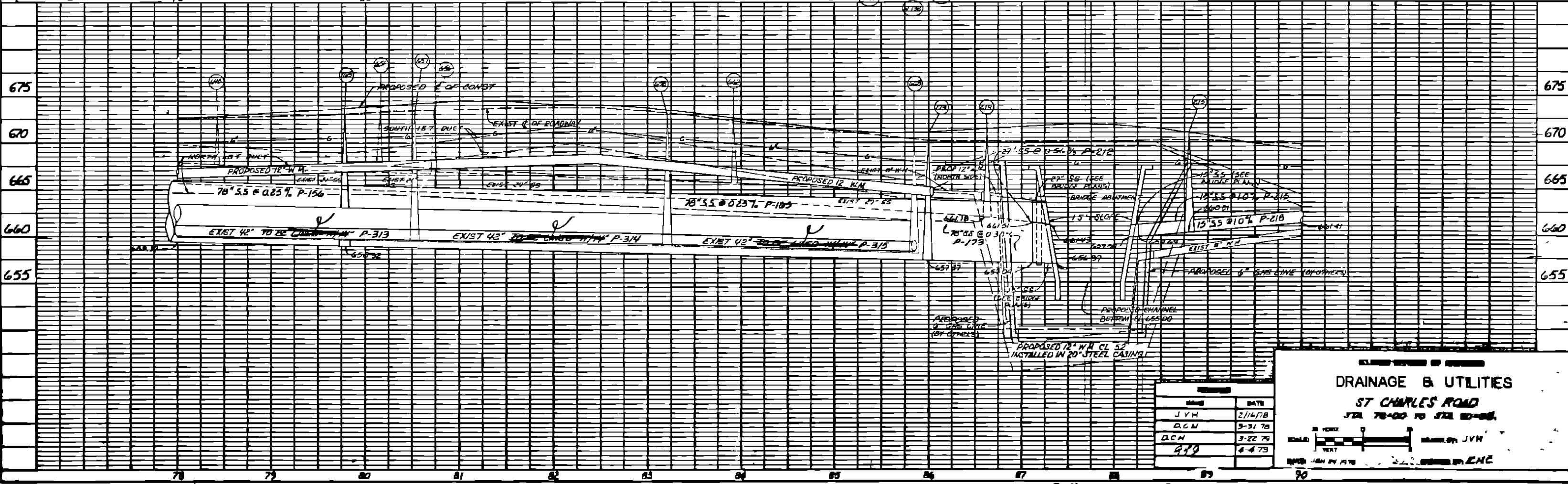
EXISTING



PROPOSED

NOTE:
FOR GENERAL DRAINAGE AND UTILITY NOTES SEE SHEET NO. 103
FOR BENCHMARK INFO. SEE SHEETS 101 & 102
THE EXISTING SOUTH L&T DUCT SHALL BE LOWERED STA. 81+75 TO 82+75 (BY OTHERS)

BENCHMARK 122
X-CUT IN N.W. CORNER OF CONCRETE PLANTER FOR (FLOWER CITY) SIGN
STA. 80+85 +74 R. EL. 675.85

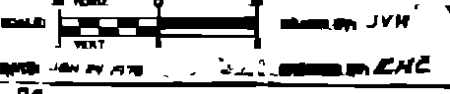


DRAINAGE & UTILITIES

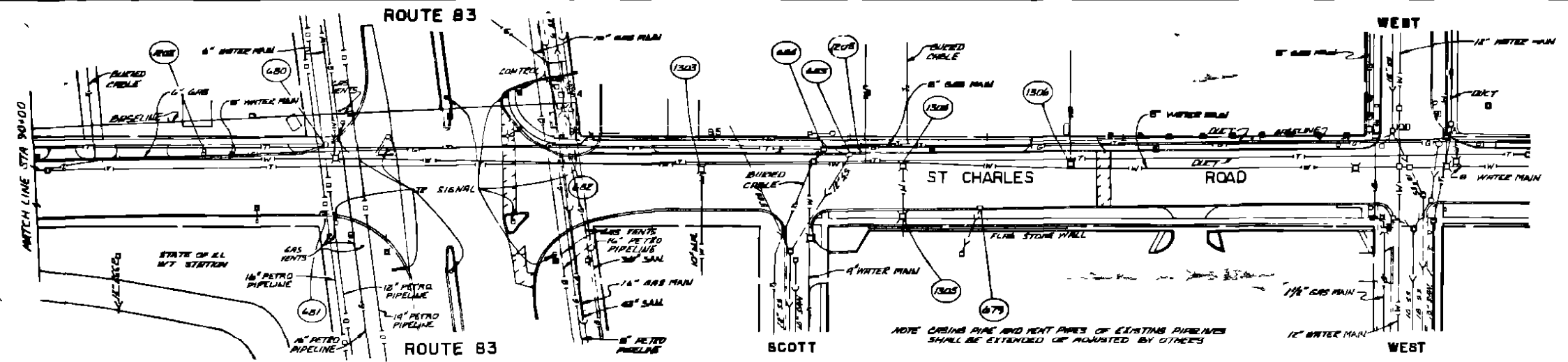
ST CHARLES ROAD

STA. 78+00 TO STA. 82+00

DATE	BY
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3-31-78	DCN
3-22-79	DCN
4-4-79	JYH

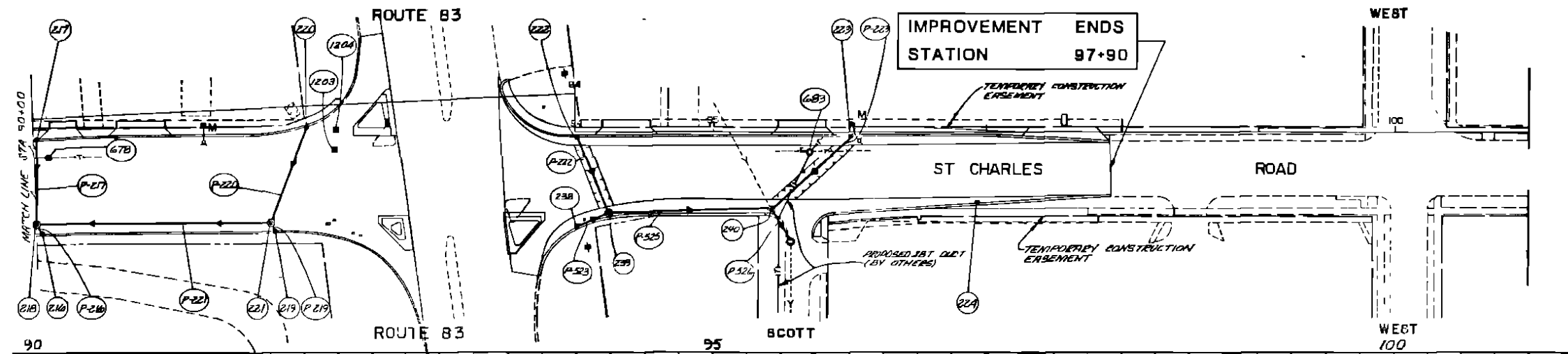


00104-27



DATE	REVISION	BY	NO.
2/10/78	1.0	D. PAGE	105
3/21/78	1.1	J. Y. H.	30
3/22/78	1.2	G. C. N.	

EXISTING



PROPOSED

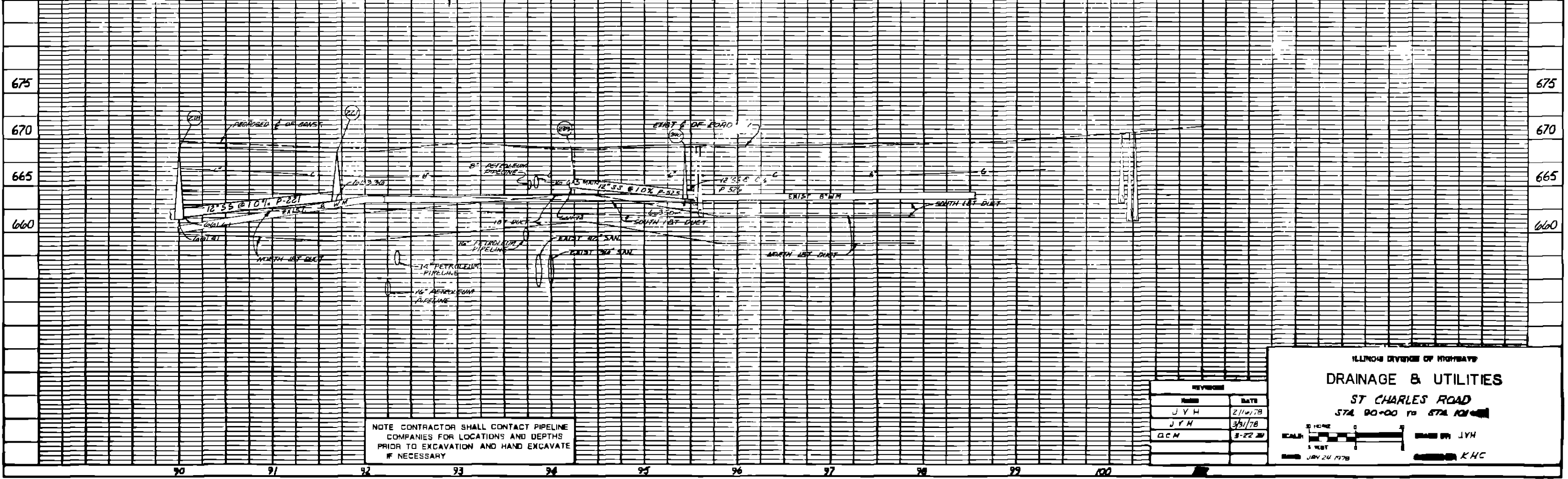
NOTE FOR GENERAL DRAINAGE AND UTILITY NOTES SEE SHEET NO 26 FOR BASELINE INFO SEE SHEETS 14 & 15

PLAN

DATE	BY
2/10/78	J. Y. H.
3/21/78	G. C. N.

PROFILE

DATE	BY
2/10/78	J. Y. H.
3/21/78	G. C. N.



NOTE CONTRACTOR SHALL CONTACT PIPELINE COMPANIES FOR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION AND HAND EXCAVATE IF NECESSARY

REVISION	DATE
J. Y. H.	2/10/78
J. Y. H.	3/21/78
G. C. N.	3-22-78

ILLINOIS DIVISION OF HIGHWAYS
DRAINAGE & UTILITIES
ST CHARLES ROAD
 STA. 90+00 TO STA. 101+00

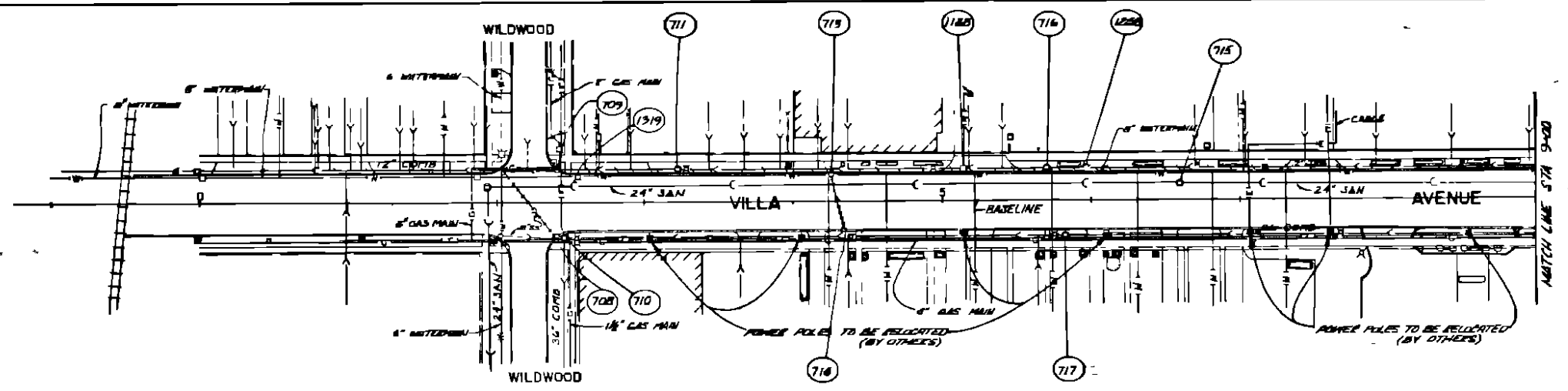
SCALE: 1" = 10' HORIZ. 1" = 5' VERT.
 DATE: JUN 24 1978
 DRAWN BY: J. Y. H.
 CHECKED BY: K. H. C.

PLATE PLAN PROFILE 1 & A
 STANDARD PAPER 11.87 IN.
 11.87 IN.

00704-28

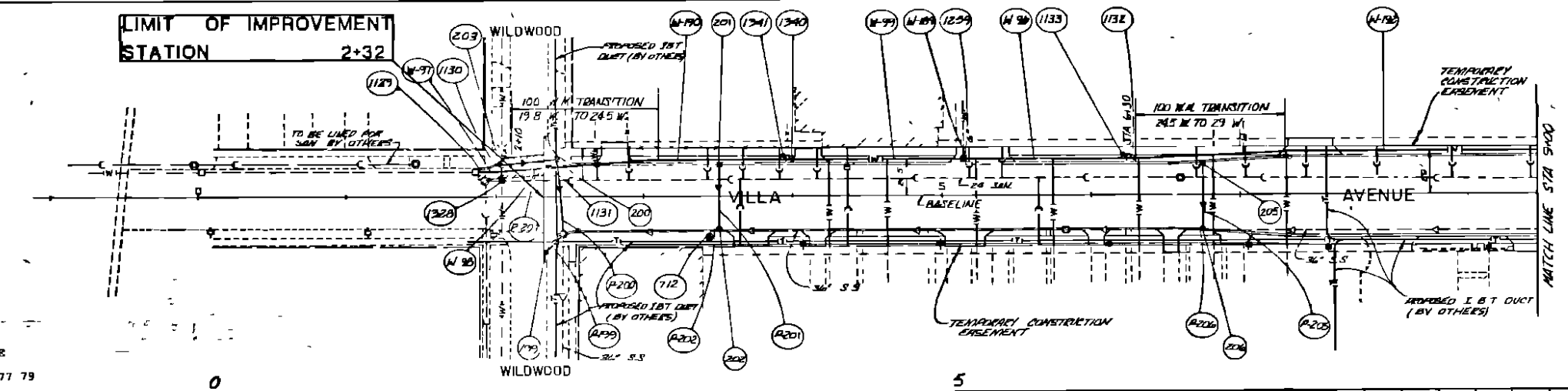
00104

DATE	REVISION	BY	DATE
10/15/78	REVISED	D.P.M.B.E.	105
10/15/78	REVISED	D.P.M.B.E.	31



EXISTING

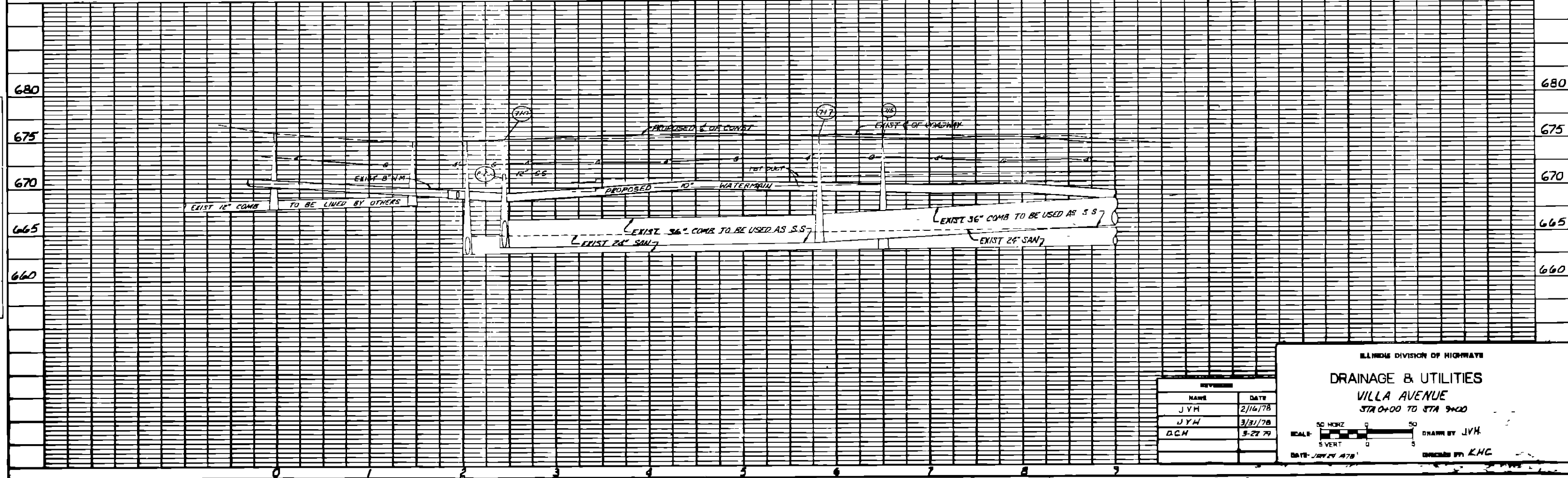
PLAN
 SURVEYED BY
 DRAWN BY
 CHECKED BY
 DATE



PROPOSED

BENCHMARK #20
 3\"/>

NOTE
 FOR GENERAL DRAINAGE
 AND UTILITY NOTES
 SEE SHEET NO 26
 FOR BASELINE INFO.
 SEE SHEETS 24 & 25



PROFILE
 SURVEYED BY
 DRAWN BY
 CHECKED BY
 DATE

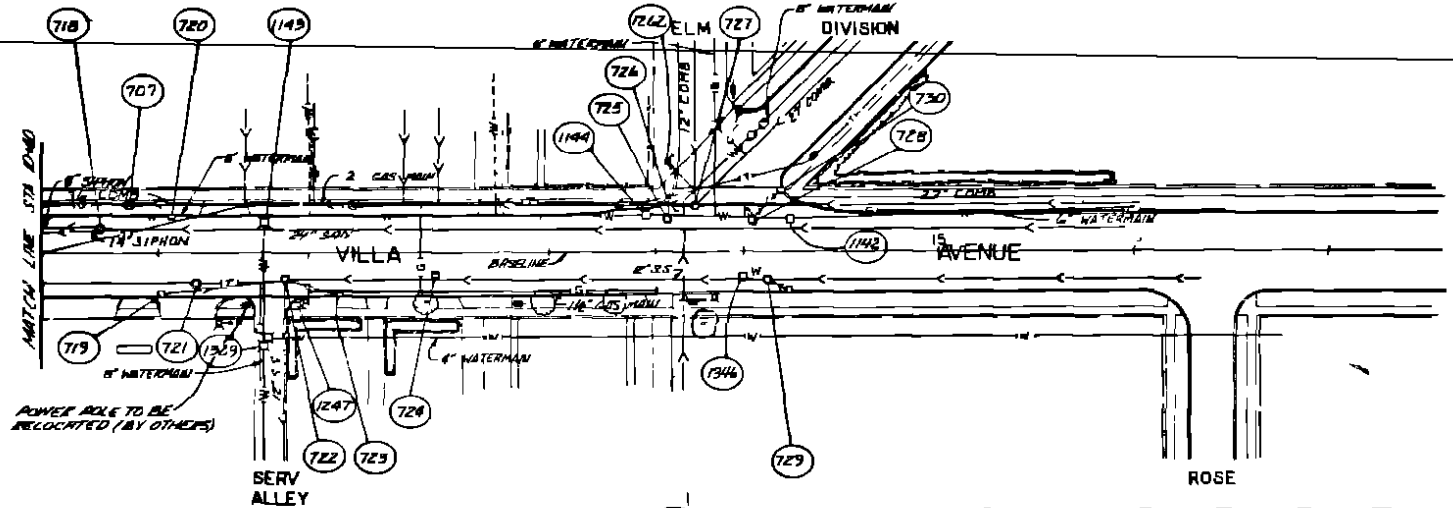
REVISION	NAME	DATE
1	JYH	2/16/78
2	JYH	3/31/78
3	DCH	5-27-79

ILLINOIS DIVISION OF HIGHWAY
 DRAINAGE & UTILITIES
 VILLA AVENUE
 STA 0+00 TO STA 9+00
 SCALE: 50 HORIZ
 5 VERT
 DRAWN BY JYH
 CHECKED BY KHC

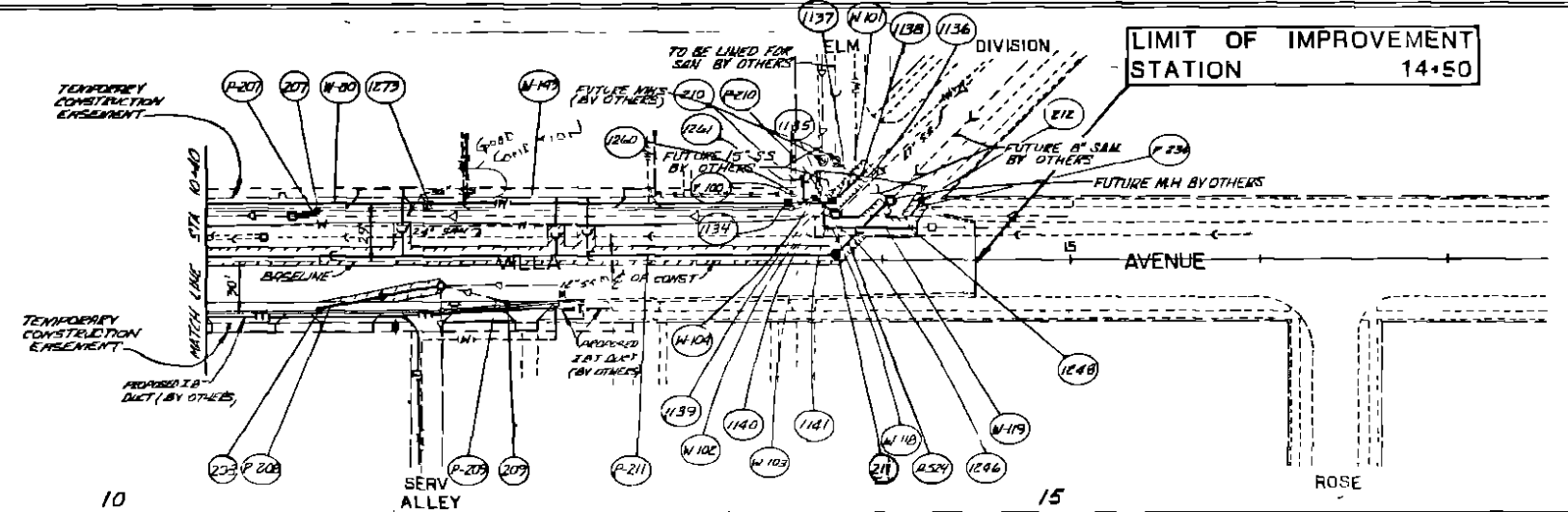
00104-29

00104

BYE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
RAU 173-140-2632	11-15-77	DUPAGE	105	32
DATE	BY	DATE		
10-80	JYH	11-80		
PROJECT NO.	SCALE	FILE NO.		
		173-140-2632		



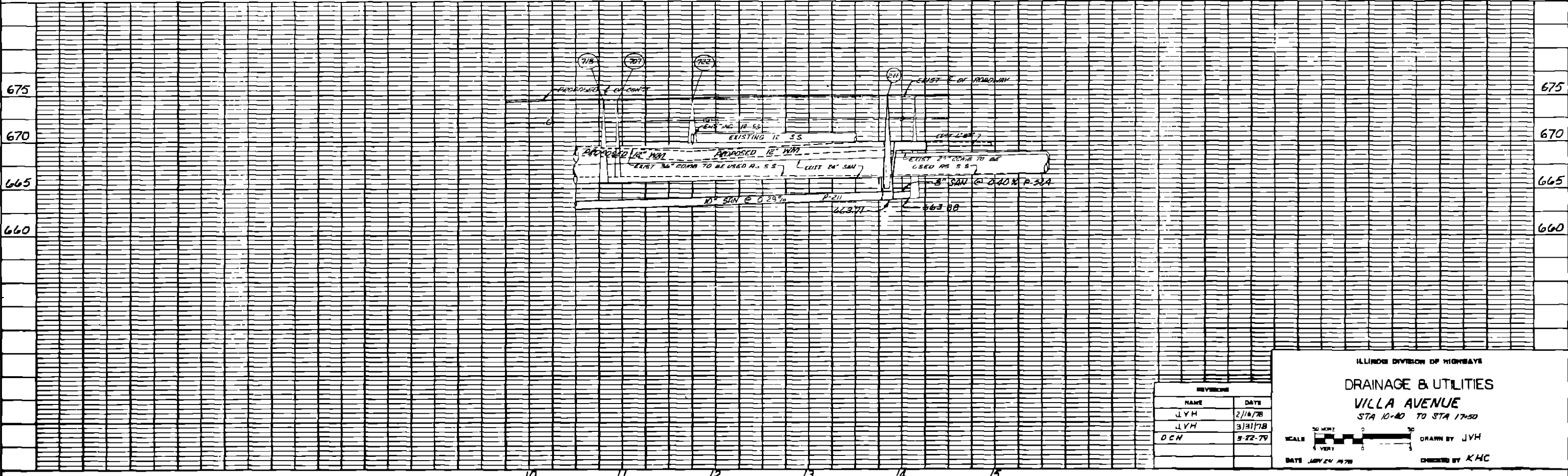
EXISTING



PROPOSED

NOTE
FOR GENERAL DRAINAGE
AND UTILITY NOTES
SEE SHEET NO 26
FOR BASELINE INFO
SEE SHEETS 14 & 15

BENCHMARK #19
N W CORNER OF CONCRETE BASE
FOR FLAG POLE
STA 72+77 +82' R EL. 676.14



REVISION	NAME	DATE
1	JYH	2/16/78
2	JYH	3/31/78
3	OCH	5-22-79

ILLINOIS DIVISION OF HIGHWAYS
DRAINAGE & UTILITIES
VILLA AVENUE
STA 10+00 TO STA 17+50

SCALE: 1" = 4' VERT, 1" = 40' HORIZ

DATE: JAN 24 1978
DRAWN BY: JYH
CHECKED BY: KHC

PLAN
DATE: 1-24-78
BY: JYH
CHECKED BY: KHC

PROFILE
DATE: 1-24-78
BY: JYH
CHECKED BY: KHC

00104-30

00104

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
147	SP-14	DUPAGE	105	33
STA.		TO STA.		
FED ROAD DIST NO.		ILLINOIS	FED AID PROJECT #5003(27)	

STR NO	LOCATION			ACTION	TYPE			ELEVATION		REMARKS
	STATION	CENTER LINE	OFFSET		STRUCTURE	DIA	FRAME & GRATE	ELEV	LOCATION	
129	60 + 75	ST CHAR	4 5' N	CONSTRUCT	C B TYP C	2'	T-11	693 48	EDGE	SPECIAL
130	60 + 76	ST CHAR	69' S	CONSTRUCT	INLET, TYP A	2'	T-11	683 50	EDGE	
131	60 + 93	ST CHAR	9 0' S	REHAB	M H TYP A	4'	T-1(SPEC)WTL	683 60	RIM	
132	61 + 00	ST CHAR	9' S	CONSTRUCT	M H (SPEC)	*	T-1(SPEC)CL	683 56	RIM	*JUNCTION CHAMBER 11, SEE DETAIL SHEET 196
133	61 + 01	ST CHAR	46 0' S	REHAB	M H TYP A	4'	T-1(SPEC)WTL	683 66	RIM	
134	61 + 06	ST CHAR	66' S	CONSTRUCT	C B TYP C	2'	T-11	683 45	EDGE	
135	61 + 10	ST CHAR	30' S	CONSTRUCT	M H (SPEC)	*	T-1(SPEC)CL	683 94	RIM	*JUNCTION CHAMBER 12, SEE DETAIL SHEET 195
136	62 + 60	ST CHAR	57 3' S	CONSTRUCT	C B TYP C	2'	T-11	682 44	EDGE	
137	62 + 83	ST CHAR	2 7' S	CONSTRUCT	INLET TYP A	2'	T-11	682 28	EDGE	
138	63 + 97	ST CHAR	47 0' S	REHAB	M H TYP A	4'	T-1(SPEC)WTL	681 86	RIM	
139	64 + 33	ST CHAR	5' N	CONSTRUCT	C B TYP C	2'	T-11	681 35	EDGE	SPECIAL
140	64 + 37	ST CHAR	69' S	CONSTRUCT	C B TYP C	2'	T-11	681 10	EDGE	
141	64 + 43	ST CHAR	30' S	CONSTRUCT	M H TYP TEE	4'	T-1(SPEC)CL	681 96	RIM	
142	64 + 62	ST CHAR	69' S	CONSTRUCT	INLET, TYP A	2'	T-11	681 30	EDGE	
143	66 + 67	ST CHAR	2 7' S	CONSTRUCT	INLET, TYP A	2'	T-11	680 19	EDGE	
144	66 + 67	ST CHAR	57 3' S	CONSTRUCT	C B TYP C	2'	T-11	680 19	EDGE	
145	66 + 86	ST CHAR	45 5' S	REHAB	M H TYP A	4'	T-1(SPEC)WTL	680 36	RIM	
146	68 + 72	ST CHAR	2 7' S	CONSTRUCT	INLET TYP A	2'	T-11	679 03	EDGE	
147	68 + 72	ST CHAR	57 3' S	CONSTRUCT	C B TYP C	2'	T-11	679 03	EDGE	
148	68 + 82	ST CHAR	30' S	CONSTRUCT	M H TYP TEE	4'	T-1(SPEC)CL	679 53	RIM	
149	70 + 85	ST CHAR	2 7' S	CONSTRUCT	C B TYP C	2'	T-11	677 81	EDGE	SPECIAL
150	70 + 85	ST CHAR	57 3' S	CONSTRUCT	C B TYP C	2'	T-11	677 81	EDGE	
151	9 + 13	VILLA	27 3' W	CONSTRUCT	C B TYP C	2'	T-11	673 95	EDGE	
152	10 + 27	VILLA	27 3' W	CONSTRUCT	C B TYP C	2'	T-11	673 95	EDGE	SPECIAL
153	73 + 19	ST CHAR	5' S	CONSTRUCT	M H TYP A	5'	T-1(SPEC)CL	674 40	RIM	
154	73 + 37	ST CHAR	45' S	CONSTRUCT	SAN M H	5'	T-1(SPEC)WTL	674 43	RIM	*SPECIAL SANITARY M H #1, SEE DETAIL SHEET 197
155	73 + 39	ST CHAR	5' S	CONSTRUCT	SAN M H	5'	T-1(SPEC)WTL	674 25	RIM	
156	73 + 55	ST CHAR	30' S	CONSTRUCT	M H (SPEC)	*	T-1(SPEC)CL	674 60	RIM	*JUNCTION CHAMBER #1 SEE DETAIL SHEET 194
157	73 + 63	ST CHAR	72 5' S	CONSTRUCT	M H TYP A	5'	T-1(SPEC)CL	673 79	RIM	
158	73 + 71	ST CHAR	70' S	CONSTRUCT	C B TYP C	2'	T-11	673 75	EDGE	
159	75 + 25	ST CHAR	57 3' S	CONSTRUCT	C B TYP C	2'	T-11	672 88	EDGE	
160	76 + 55	ST CHAR	2 7' S	CONSTRUCT	INLET, TYP A	2'	T-11	671 65	EDGE	
161	77 + 00	ST CHAR	4' S	CONSTRUCT	C B TYP C	2'	T-11	671 55	EDGE	
162	77 + 05	ST CHAR	51 5' S	CONSTRUCT	C B TYP C	2'	T-11	671 65	EDGE	
163	78 + 52	ST CHAR	7 5' S	CONSTRUCT	C B TYP C	2'	T-11	672 42	EDGE	
164	79 + 45	ST CHAR	63' S	CONSTRUCT	INLET, TYP A	2'	T-11	672 50	EDGE	
165	79 + 77	ST CHAR	36' S	CONSTRUCT	M H TYP TEE	4'	T-1(SPEC)CL	673 57	RIM	
166	79 + 77	ST CHAR	65' S	CONSTRUCT	C B TYP C	2'	T-11	672 50	EDGE	
167	80 + 63	ST CHAR	6' S	CONSTRUCT	C B TYP C	2'	T-11	673 70	EDGE	SPECIAL

STR NO	LOCATION			ACTION	TYPE			ELEVATION		REMARKS
	STATION	CENTER LINE	OFFSET		STRUCTURE	DIA	FRAME & GRATE	ELEV	LOCATION	
168	83 + 33	ST CHAR	54 8' S	CONSTRUCT	C B TYP C	2'	T-11	672 78	EDGE	
169	83 + 60	ST CHAR	7 5' S	CONSTRUCT	C B TYP C	2'	T-11	672 54	EDGE	
170	83 + 75	ST CHAR	6 5' N	CONSTRUCT	INLET, TYP A	2'	T-11	672 88	EDGE	
171	85 + 61	ST CHAR	67' S	CONSTRUCT	INLET, TYP A	2'	T-11	670 25	EDGE	
172	85 + 70	ST CHAR	5' S	CONSTRUCT	C B TYP C	2'	T-11	670 50	EDGE	
173	85 + 96	ST CHAR	36' S	CONSTRUCT	M H TYP TEE	4'	T-1(SPEC)CL	670 93	RIM	
174	85 + 99	ST CHAR	70 5' S	CONSTRUCT	C B TYP C	2'	T-11	670 25	EDGE	
175	86 + 35	ST CHAR	67' S	CONSTRUCT	C B TYP C	2'	T-1 WITH O L	670 30	RIM	
178	85 + 03	ST CHAR	22 5' S	CONSTRUCT	I B T M H	6'x12	BY OTHERS	671 22	RIM	TO BE CONSTRUCTED BY OTHERS
199	2 + 34	VILLA	17' E	CONSTRUCT	C B TYP C	2'	T-11	673 95	EDGE	
200	2 + 41	VILLA	25' W	CONSTRUCT	C B TYP C	2'	T-11	674 60	EDGE	
201	3 + 52	VILLA	22 8' W	CONSTRUCT	INLET TYP A	2'	T-11	675 08	EDGE	
202	3 + 52	VILLA	22 8' E	CONSTRUCT	C B TYP C	2'	T-11	675 08	EDGE	
203	2 + 01	VILLA	21 5' W	CONSTRUCT	INLET, TYP A	2'	T-11	674 20	EDGE	
205	6 + 75	VILLA	3 6' W	CONSTRUCT	INLET, TYP A	2'	T-11	674 70	EDGE	
206	6 + 75	VILLA	3 6' E	CONSTRUCT	C B TYP C	2'	T-11	674 70	EDGE	
207	11 + 00	VILLA	7 3' W	CONSTRUCT	C B TYP C	2'	T-11	673 90	EDGE	
208	11 + 00	VILLA	7 3' E	CONSTRUCT	C B TYP C	2'	DEPRESSED (SPEC)	673 67	EDGE	
209	12 + 00	VILLA	4 3' F	CONSTRUCT	C B TYP C	2'	DEPRESSED (SPEC)	674 02	EDGE	
210	13 + 54	VILLA	33' W	CONSTRUCT	C B TYP C	2'	T-11	674 00	EDGE	
211	13 + 75	VILLA	3' W	CONSTRUCT	SAN M H	4'	T-1(SPEC)WTL	674 85	RIM	
212	14 + 20	VILLA	33' W	CONSTRUCT	C B TYP C	2'	T-11	673 82	EDGE	
213	87 + 03	ST CHAR	36' S	CONSTRUCT	PIPE ELBOW	78"				INCIDENTAL TO COST OF STORM SEWER
214	86 + 62	ST CHAR	4' S	CONSTRUCT	M H TYP A	5'	T-1(SPEC)CL	671 25	RIM	
215	88 + 80	ST CHAR	75' S	CONSTRUCT	M H TYP A	4'	T-1(SPEC)CL	670 10	RIM	
216	90 + 02	ST CHAR	15' S	CONSTRUCT	C B TYP C	2'	T-11	668 58	EDGE	
217	90 + 02	ST CHAR	85' S	CONSTRUCT	C B TYP C	2'	T-11	668 30	EDGE	
218	90 + 00	ST CHAR	77' S	CONSTRUCT	M H TYP A	4'	T-1(SPEC)CL	668 43	RIM	
219	91 + 72	ST CHAR	92' S	CONSTRUCT	C B TYP C	2'	T-11	667 69	EDGE	
220	92 + 00	ST CHAR	16' S	CONSTRUCT	C B TYP C	2'	T-11	667 82	EDGE	
221	91 + 70	ST CHAR	86' S	CONSTRUCT	M H TYP A	4'	T-1(SPEC)CL	667 83	RIM	
222	94 + 00	ST CHAR	3' S	CONSTRUCT	C B TYP C	2'	T-11	668 30	EDGE	
223	96 + 00	ST CHAR	3' S	CONSTRUCT	C B TYP C	2'	T-11	668 44	EDGE	
224	96 + 90	ST CHAR	55' S	CONSTRUCT	C B TYP C	2'	T-11	668 63	EDGE	
234	73 + 52	ST CHAR	21' S	CONSTRUCT	PIPE ELBOW	36"				INCIDENTAL TO COST OF STORM SEWER
236	64 + 50	ST CHAR	75' S	CONSTRUCT	SAN M H	4'	T-1(SPEC)WTL	681 70	RIM	
238	94 + 00	ST CHAR	72' S	CONSTRUCT	C B TYP C	2'	T-11	668 40	EDGE	
239	94 + 23	ST CHAR	60' S	CONSTRUCT	M H TYP A	4'	T-1(SPEC)CL	668 54	RIM	
240	95 + 45	ST CHAR	60' S	CONSTRUCT	M H TYP A	4'	T-1(SPEC)CL	668 85	RIM	

ILLINOIS DIVISION OF HIGHWAYS

STORM & SANITARY SEWER TABLES
PROPOSED STRUCTURES

REVISIONS	
NAME	DATE

SCALE NONE DRAWN BY *RSP*

DATE 3-22-79 CHECKED BY *KMC*

00104-31

00104

RTL	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAU	173-66-037	DuPAGE	105	34
ITA	TO STA.			
FED ROAD DIST NO.	ILLINOIS	FED AID PROJECT	A-5008(27)	

STR NO	LOCATION			ACTION	TYPE			PROPOSED ELEVATION		REMARKS
	STATION	CENTER LINE	OFFSET		STRUCTURE	DIA	FRAME & GRATE	ELEV	LOCATION	
601	60 + 68.5	ST CHAS	9.5' S	ABANDON	EXIST	C B				
602	60 + 72	ST CHAS	52.4' S	ABANDON	EXIST	C B				
603	60 + 90.5	ST CHAS	51.1' S	ADJUST	EXIST	M H	683.48	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
605	61 + 09.5	ST CHAS	51.3' S	ABANDON	EXIST	C B				
606	61 + 46	ST CHAS	48.5' S	ABANDON	EXIST	C B				
607	62 + 74	ST CHAS	18' S	RECONST	I B T M H		682.54	RIM	TO BE RECONSTRUCTED BY OTHERS	
608	64 + 19	ST CHAS	0.5' S	ADJUST	I B T M H		682.26	RIM	TO BE ADJUSTED BY OTHERS	
609	64 + 27	ST CHAS	49.9' S	ABANDON	EXIST	C B				
610	64 + 50	ST CHAS	50.4' S	ABANDON	EXIST	M H				
611	64 + 68	ST CHAS	51.1' S	ABANDON	EXIST	C B				
612	65 + 93	ST CHAS	51.4' S	ABANDON	EXIST	M H				
613	66 + 36.5	ST CHAS	10.5' S	ABANDON	EXIST	C B				
614	66 + 75.5	ST CHAS	49.1' S	ABANDON	EXIST	C B				
615	68 + 19	ST CHAS	18' S	RECONST	I B T M H		679.63	RIM	TO BE RECONSTRUCTED BY OTHERS	
616	68 + 84	ST CHAS	48.8' S	ABANDON	EXIST	C B				
617	68 + 99	ST CHAS	9.8' S	ABANDON	EXIST	C B				
618	69 + 29	ST CHAS	2.5' S	ADJUST	I B T M H		679.65	RIM	TO BE ADJUSTED BY OTHERS	
619	69 + 85.5	ST CHAS	44.4' S	ADJUST	EXIST	M H	678.64	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
620	70 + 40	ST CHAS	17' S	RECONST	I B T M H		678.35	RIM	TO BE RECONSTRUCTED BY OTHERS	
621	72 + 52.5	ST CHAS	48.9' S	ABANDON	EXIST	C B				
622	73 + 15.5	ST CHAS	9.5' S	ABANDON	EXIST	C B				
623	73 + 19	ST CHAS	5.5' S	ABANDON	EXIST	M H				
624	9 + 15.5	VILLA	22.5' W	ABANDON	EXIST	M H				
625	73 + 22	ST CHAS	68' S	ABANDON	EXIST	C B				
626	73 + 31.5	ST CHAS	70.5' S	ADJUST	EXIST	M H	674.06	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
627	73 + 61	ST CHAS	67' S	ABANDON	EXIST	C B				
628	73 + 63.5	ST CHAS	64' S	ABANDON	EXIST	M H				
629	73 + 74	ST CHAS	50' S	ABANDON	EXIST	INLET				
630	73 + 87.5	ST CHAS	45.5' S	ADJUST	EXIST	M H	674.12	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
631	73 + 77	ST CHAS	12.8' S	ADJUST	I B T M H		674.00	RIM	TO BE ADJUSTED BY OTHERS	
632	73 + 78	ST CHAS	2.3' S	ADJUST	I B T M H		673.75	RIM	TO BE ADJUSTED BY OTHERS	
633	75 + 37.5	ST CHAS	50.5' S	ADJUST	EXIST	M H	672.86	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
634	75 + 62	ST CHAS	50.5' S	ABANDON	EXIST	C B				
635	75 + 94	ST CHAS	55.5' S	ABANDON	EXIST	M H				
636	76 + 62	ST CHAS	8.5' S	ABANDON	EXIST	C B				
637	76 + 77	ST CHAS	50.5' S	ABANDON	EXIST	INLET				
638	76 + 81	ST CHAS	52' S	ABANDON	EXIST	C B				
639	76 + 97.5	ST CHAS	6.5' S	ABANDON	EXIST	C B				
640	76 + 96	ST CHAS	11' N	ADJUST	EXIST	M H	672.30	RIM		
641	77 + 05	ST CHAS	7' S	ADJUST	EXIST	M H	671.57	RIM		
642	77 + 33	ST CHAS	30.5' S	ADJUST	EXIST	M H	672.07	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
643	78 + 28	ST CHAS	10.5' S	ABANDON	EXIST	C B				
644	78 + 30	ST CHAS	52.5' S	ABANDON	EXIST	M H				
645	78 + 43	ST CHAS	7' S	ADJUST	EXIST	M H	672.31	RIM		
646	79 + 44.5	ST CHAS	69.4' S	ABANDON	EXIST	INLET				
647	79 + 50	ST CHAS	70' S	ABANDON	EXIST	C B				
648	79 + 73.5	ST CHAS	70' S	ABANDON	EXIST	C B				
649	79 + 77.5	ST CHAS	70' S	ABANDON	EXIST	INLET				
650	79 + 80	ST CHAS	19.5' S	RECONST	I B T M H		673.50	RIM	TO BE RECONSTRUCTED BY OTHERS	
651	80 + 11.5	ST CHAS	7' S	ADJUST	EXIST	M H	673.40	RIM		
652	80 + 23	ST CHAS	2.7' S	ADJUST	I B T M H		673.74	RIM	TO BE ADJUSTED BY OTHERS	
653	80 + 47.5	ST CHAS	2.5' N	ADJUST	EXIST	M H	673.75	RIM		
654	80 + 50.5	ST CHAS	10' N	ADJUST	EXIST	C B	673.75	EDGE		
655	80 + 55.5	ST CHAS	6.5' S	ABANDON	EXIST	INLET				
656	80 + 72	ST CHAS	7.7' S	ADJUST	EXIST	M H	673.82	RIM		
657	80 + 53	ST CHAS	50.9' S	ADJUST	EXIST	M H	673.76	RIM		
658	83 + 21	ST CHAS	49.5' S	ADJUST	EXIST	M H	673.02	RIM	PROVIDE NEW T-1 (SPEC) WTL*	
659	83 + 70	ST CHAS	7.7' S	ABANDON	EXIST	C B				
660	83 + 79	ST CHAS	9' N	ADJUST	EXIST	C B	673.12	RIM		
661	83 + 85.5	ST CHAS	3.5' N	ADJUST	EXIST	M H	672.85	RIM		

STR NO	LOCATION			ACTION	TYPE			PROPOSED ELEVATION		REMARKS	
	STATION	CENTER LINE	OFFSET		STRUCTURE	DIA	FRAME & GRATE	ELEV	LOCATION		
662	83 + 92	ST CHAS	9' S	ADJUST	EXIST	M H			672.19	RIM	
663	83 + 90.5	ST CHAS	53.5' S	ABANDON	EXIST	INLET					
664	83 + 92.5	ST CHAS	49' S	ABANDON	EXIST	C B					
665	83 + 67.5	ST CHAS	61.5' S	ABANDON	EXIST	INLET					
666	85 + 73	ST CHAS	3' S	ADJUST	I B T M H				671.22	RIM	TO BE ADJUSTED BY OTHERS
667	85 + 80	ST CHAS	22.5' S	ADJUST	I B T M H				670.82	RIM	TO BE ADJUSTED BY OTHERS
668	85 + 85	ST CHAS	53.5' S	ADJUST	EXIST	M H			670.60	RIM	PROVIDE NEW T-1 (SPEC) WTL*
669	85 + 99	ST CHAS	12' S	ADJUST	EXIST	M H			670.69	RIM	
670	86 + 95	ST CHAS	18' S	ABANDON	EXIST	INLET					
671	86 + 96	ST CHAS	57.5' S	ABANDON	EXIST	INLET					
672	87 + 03	ST CHAS	1.5' N	REMOVE	EXIST	HEADWALL					INCIDENTAL TO SPECIAL EXCAVATION
673	88 + 42	ST CHAS	20.5' S	ABANDON	EXIST	INLET					
674	89 + 37	ST CHAS	11.5' S	ADJUST	I B T M H				669.90	RIM	TO BE ADJUSTED BY OTHERS
675	89 + 47.5	ST CHAS	12' S	ADJUST	I B T M H				669.25	RIM	TO BE ADJUSTED BY OTHERS
676	89 + 72	ST CHAS	18' S	ADJUST	I B T M H				668.98	RIM	TO BE ADJUSTED BY OTHERS
677	89 + 94.5	ST CHAS	15' S	ADJUST	I B T M H				668.62	RIM	TO BE ADJUSTED BY OTHERS
678	90 + 08.5	ST CHAS	11' S	RECONST	I B T M H				668.88	RIM	TO BE RECONSTRUCTED BY OTHERS
679	96 + 94	ST CHAS	49.5' S	ABANDON	EXIST	INLET					
680	92 + 16.5	ST CHAS	N B/C	ABANDON	EXIST	C B					
681	92 + 15	ST CHAS	74.5' S	ABANDON	EXIST	C B					
682	93 + 94.5	ST CHAS	10.1' S	ABANDON	EXIST	INLET					
683	95 + 72.5	ST CHAS	15' S	RECONST	I B T M H				668.85	RIM	TO BE RECONSTRUCTED BY OTHERS
684	95 + 73	ST CHAS	6.3' S	ADJUST	I B T M H				668.55	RIM	TO BE ADJUSTED BY OTHERS
685	95 + 97.5	ST CHAS	9.6' S	ABANDON	EXIST	INLET					
707	10 + 87	VILLA	24' W	ADJUST	FRAME & LID				674.00	RIM	
708	2 + 40.5	VILLA	21' E	ABANDON	EXIST	INLET					
709	2 + 39.5	VILLA	22' W	ABANDON	EXIST	INLET					
710	2 + 45	VILLA	24' E	ADJUST	EXIST	M H			674.67	RIM	
711	3 + 25.5	VILLA	22' W	ABANDON	EXIST	M H					
712	3 + 45	VILLA	24.5' E	RECONST	I B T M H				675.52	RIM	TO BE RECONSTRUCTED BY OTHERS
713	4 + 27	VILLA	20.8' W	ABANDON	EXIST	C B					
714	4 + 34	VILLA	20.5' E	ABANDON	EXIST	INLET					
715	6 + 62.5	VILLA	10.0' W	ADJUST	EXIST	M H			674.97	RIM	PROVIDE NEW T-1 (SPEC) WTL*
716	5 + 70	VILLA	22.5' W	ABANDON	EXIST	M H					
717	5 + 82	VILLA	24.5' E	ADJUST	EXIST	M H			675.43	RIM	
718	10 + 70	VILLA	13' W	ADJUST	FRAME & LID				674.37	RIM	PROVIDE NEW T-1 (SPEC) WTL*
719	11 + 01	VILLA	20' E	ABANDON	EXIST	INLET					
720	11 + 06	VILLA	19.6' W	ABANDON	EXIST	INLET					
721	11 + 20	VILLA	15.5' E	ADJUST	FRAME & LID				674.08	RIM	
722	11 + 65	VILLA	10.5' E	ADJUST	FRAME & LID				674.44	RIM	
723	11 + 92	VILLA	20.5' E	ABANDON	EXIST	INLET					
724	12 + 41	VILLA	11' E	ADJUST	FRAME & LID				674.53	RIM	
725	13 + 60	VILLA	16.5' W	ABANDON	EXIST	C B					
726	13 + 60.5	VILLA	26' W	ABANDON	EXIST	INLET					
727	13 + 75.5	VILLA	23.5' W	ADJUST	FRAME & LID				674.70	RIM	
728	14 + 04	VILLA	16' W	ABANDON	EXIST	C B					
729	14 + 13	VILLA	13' E	ADJUST	FRAME & LID				674.71	RIM	
730	14 + 20.5	VILLA	13' W	ABANDON	EXIST	INLET					

*TO BE PAID FOR SEPARATELY

245
24
06
35

REVISIONS	
NAME	DATE

ILLINOIS DIVISION OF HIGHWAYS
STORM & SANITARY SEWER TABLES
EXISTING STRUCTURES

SCALE NONE
DATE 3-22-79
DRAWN BY: GHP
CHECKED BY: KHC

00104-32

00104

DATE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FALL 1977	1975-196- W 225, 87	DuPAGE	105	35
STA.	TO STA.			
FED. ROAD DIST NO.	ILLINOIS	FED. AID PROJECT M-3003 (27)		

PIPE NO	LOCATION		PAY LENGTH (FEET)	GRADE %	ELEVATION		DIA	TYPE	TRENCH BACKFILL (C Y)	REMARKS
	FROM	TO			FROM	TO				
P-124	FUT. M.H.	135	50	0.65	669.50	669.17	42"	S.S. TYPE 3	143	
P-129		129	21	1.00	680.48	680.23	12"	S.S. TYPE 1	3	
P-130		130	28	1.00	680.75	680.45	12"	S.S. TYPE 1	4	
P-131		131	4	1.00	665.04	666.00	42"	S.S. TYPE 1	16	
P-132		132	23	0.10	661.76	661.73	60"	S.S. TYPE 4	68	
P-133		133	296	0.02	664.68	663.74	14"	LINER		EXIST 39"
P-134		134	27	1.00	679.67	679.57	12"	S.S. TYPE 1	4	
P-135		135	328	0.10	661.73	661.40	78"	S.S. TYPE 3	1928	
P-136		P-135	25	1.00	678.86	678.60	12"	S.S. TYPE 1	4	BREAK-IN CONNECTION
P-137		P-135	26	1.00	679.53	679.26	12"	S.S. TYPE 1	8	BREAK-IN CONNECTION
P-138		138	289	0.24	663.74	663.05	14"	LINER		EXIST 39"
P-139		139	34	8.00	678.20	675.24	12"	S.S. TYPE 1	5	
P-140		140	36	1.00	677.52	677.13	12"	S.S. TYPE 1	5	
P-141		141	433	0.10	661.40	660.96	78"	S.S. TYPE 3	2190	
P-142		142	23	1.00	678.55	678.30	12"	S.S. TYPE 1	4	
P-143		P-141	26	15.00	677.44	673.39	12"	S.S. TYPE 1	4	BREAK-IN CONNECTION
P-144		P-141	26	1.00	676.61	676.34	12"	S.S. TYPE 1	4	BREAK-IN CONNECTION
P-145		145	239	0.23	663.05	662.36	14"	LINER		EXIST 39"
P-146		146	26	1.00	676.28	675.99	12"	S.S. TYPE 1	4	
P-147		147	26	1.00	675.45	675.18	12"	S.S. TYPE 1	4	
P-148		148	468	0.10	660.96	660.48	78"	S.S. TYPE 3	1762	
P-149		P-148	26	11.50	673.50	670.40	12"	S.S. TYPE 1	4	BREAK-IN CONNECTION
P-150		P-148	26	1.00	674.23	673.96	12"	S.S. TYPE 1	4	BREAK-IN CONNECTION
P-151		151	50	1.00	670.27	669.74	12"	S.S. TYPE 1	7	
P-152		152	17	1.00	670.95	670.75	12"	S.S. TYPE 1	3	
P-153		153	38	0.35	665.69	665.55	36"	S.S. TYPE 2	5	
P-154		154	50	0.22	661.19	661.08	14"	LINER		EXIST 39"
P-155		155			662.65	661.65	6"	D.I. CL. 2		INVERT SIPHON *SEE DETAIL SHEET 197
P-156		156	618	0.25	660.48	659.92	78"	S.S. TYPE 2	1676	
P-158		158	2	1.00	670.17	670.12	12"	S.S. TYPE 1	1	
P-159		P-156	21	1.00	669.30	669.08	12"	S.S. TYPE 1	3	BREAK-IN CONNECTION
P-160		160	47	1.00	668.90	668.45	12"	S.S. TYPE 1	6	
P-161		161	3	1.00	667.97	667.91	12"	S.S. TYPE 1	1	
P-162		P-156	15	1.00	668.07	667.91	12"	S.S. TYPE 1	2	BREAK-IN CONNECTION
P-163		163	7	1.00	668.84	668.74	12"	S.S. TYPE 1	2	
P-164		164	30	1.00	669.75	669.42	12"	S.S. TYPE 1	4	
P-165		165	615	0.25	658.92	657.37	78"	S.S. TYPE 2	1618	
P-166		166	26	1.00	668.92	668.63	12"	S.S. TYPE 1	4	
P-167		167	7	1.00	670.70	670.60	12"	S.S. TYPE 1	2	
P-168		P-165	15	1.00	669.20	669.04	12"	S.S. TYPE 1	2	BREAK-IN CONNECTION
P-169		169	28	1.00	668.96	668.65	12"	S.S. TYPE 1	4	
P-171		171	34	1.00	667.50	667.13	12"	S.S. TYPE 1	5	
P-172		172	26	1.00	666.92	666.63	12"	S.S. TYPE 1	4	
P-173		173	90	0.30	657.37	657.06	78"	S.S. TYPE 2	271	
P-174		174	32	1.00	666.67	666.32	12"	S.S. TYPE 1	5	

PIPE NO	LOCATION		PAY LENGTH (FEET)	GRADE %	ELEVATION		DIA	TYPE	TRENCH BACKFILL (C Y)	REMARKS
	FROM	TO			FROM	TO				
P-175		175	47	1.00	666.72	666.22	12"	S.S. TYPE 1	7	
P-199		199	14	1.00	670.37	670.20	12"	S.S. TYPE 1	3	
P-200		200	47	1.00	671.02	670.52	12"	S.S. TYPE 1	7	
P-201		201	46	1.00	672.08	671.62	12"	S.S. TYPE 1	6	
P-202		EXIST	6	1.00	671.49	671.42	12"	S.S. TYPE 1	1	BREAK-IN CONNECTION
P-204		203	38	1.00	671.60	671.20	12"	S.S. TYPE 1	5	
P-205		205	45	1.00	671.70	671.12	12"	S.S. TYPE 1	6	
P-206		EXIST	6	1.00	671.10	671.03	12"	S.S. TYPE 1	1	BREAK-IN CONNECTION
P-207		207	10	1.00	670.32	670.21	12"	S.S. TYPE 1	2	
P-208		208	63	1.00	670.92	670.26	12"	S.S. TYPE 1	8	
P-209		EXIST	7	1.00	670.99	670.89	12"	S.S. TYPE 1	2	EXIST 12"
P-210		210	12	1.00	670.42	670.27	12"	S.S. TYPE 1	2	
P-211		211	376	0.28	663.71	662.65	10"	SAN	493	
P-212		EXIST	45	0.56	661.78	661.51	27"	S.S. TYPE 2	72	*OUTFALL STRUCTURE SPECIAL 27"
P-213		ABUTMENT	8	0.30	657.06	657.03	78"	S.S. TYPE 2	21	*OUTFALL STRUCTURE SPECIAL 78"
P-215		ABUTMENT	50	1.00	660.21	659.69	15"	S.S. TYPE 2	78	*OUTFALL STRUCTURE, SPECIAL 15"
P-216		216	6	1.00	665.00	664.91	12"	S.S. TYPE 1	1	
P-217		217	60	1.00	664.72	664.09	12"	S.S. TYPE 1	8	
P-218		218	116	1.00	661.41	660.21	15"	S.S. TYPE 2	180	
P-219		219	4	1.00	664.11	664.04	12"	S.S. TYPE 1	1	
P-220		220	72	1.00	664.24	663.49	12"	S.S. TYPE 1	10	
P-221		221	172	1.00	663.36	661.61	12"	S.S. TYPE 2	139	
P-222		222	55	1.00	665.30	664.72	12"	S.S. TYPE 1	7	
P-223		223	75	1.00	665.44	664.69	12"	S.S. TYPE 1	10	
P-234		EXIST	8	1.00	670.24	EXIST	12"	S.S. TYPE 1	1	BREAK-IN CONNECTION
P-276		170	3	1.00	670.13	670.07	12"	S.S. TYPE 1	1	
P-310		619	351	0.32	662.32	661.19	14"	LINER		EXIST 3-
P-311		630	150	0.28	661.08	660.66	14"	LINER		EXIST. 4.
P-312		633	255	0.28	660.66	659.95	14"	LINER		EXIST. 42"
P-313		642	258	0.18	659.95	659.49	14"	LINER		EXIST 42"
P-314		657	268	0.22	659.49	658.91	14"	LINER		EXIST 42"
P-315		658	264	0.30	658.91	658.12	14"	LINER		EXIST. 42"
P-514		131	35	0.51	664.86	664.68	14"	LINER		EXIST. 39"
P-515		FUTURE	34	0.10	661.80	661.76	60"	S.S. TYPE 4	194	
P-516		FUTURE	48	0.20	666.64	666.54	27"	S.S. TYPE 3	130	
P-517		EXIST	P-148	33	1.00		12"	S.S. TYPE 1	5	BREAK-IN CONNECTION
P-518		156	35	0.35	666.05	665.91	36"	S.S. TYPE 2	42	
P-519		EXIST	P-165	30	1.00		12"	S.S. TYPE 1	4	BREAK-IN CONNECTION
P-523		238	23	1.00	665.40	665.14	12"	S.S. TYPE 1	3	
P-524		FUT. M.H.	211	0.40	663.88	663.71	8"	SAN	53	
P-525		239	118	1.00	664.72	663.50	12"	S.S. TYPE 1	29	
P-526		EXIST	23	1.00	663.50	663.24	12"	S.S. TYPE 2	9	

*TO BE PAID FOR SEPARATELY

REVISIONS	
NAME	DATE

ILLINOIS DIVISION OF HIGHWAYS

STORM AND SANITARY SEWER TABLES

PIPE

SCALE NONE DRAWN BY *RRP*

DATE 3-22-79 CHECKED BY *KHC*

00104-33

00104

DATE	REVISION	COUNTY	TOTAL SHEETS	SHEET NO
PAV 1975-1980		DUPAGE	105	50
1991	11/15/84			

ITEM	UNIT	QUANTITY
NAME PLATE	EACH	1
CHANNEL EXCAVATION	CU YDS	1500
PORDUS GRANULAR EMBANKMENT, SPECIAL	CU YDS	375
STRUCTURE EXCAVATION	CU YDS	570
COFFERDAM EXCAVATION	CU YDS	450
COFFERDAMS	EACH	2

DESIGN DATA

DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, A A S B T O 1973 AND INTERIMS 1974, 1975, 1976 & 1977

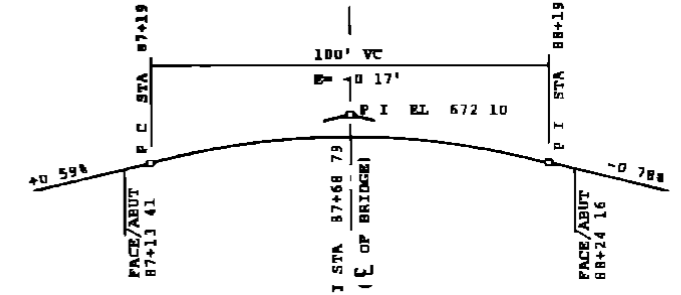
DESIGN LOAD HS20

DESIGN STRESSES
 CAST IN PLACE CONCRETE
 f_c = 1400 psi
 f_t = 562 psi
 f_s = 5

PRESTRESSED CONCRETE BEAMS
 f_c = 5000 psi
 f_{ci} = SEE INDIVIDUAL BEAM DETAILS

REINFORCING STEEL, DEFORMED
 f_s = 20,000 psi

PRESTRESSING STEEL - 1/2" Ø STRANDS
 f_{ps} = 270,000 psi EXTRA HIGH STRENGTH
 (INITIAL FORCE PER STRAND IS TO BE 28,900 LBS)
 f_{ai} = 189,000 psi



STATION 87+88.78
 BUILT 1978 BY
 STATE OF ILLINOIS
 SA RT SA-7 SEC. 0-1.15D
 F.A. PROJ. M-5003(27)
 LOADING HS 20
 STR. NO. 022-6950

NAME PLATE
 (SEE STD 2113)

NOTE
 STRUCTURE NUMBER (STR. NO. 1)
 TO BE SUPPLIED BY DISTRICT
 LOCATE NAME PLATE AT THE
 NORTHEAST WINGWALL (#1)

ILLINOIS DIVISION OF HIGHWAY

GENERAL BRIDGE PLAN

ST CHARLES ROAD BRIDGE - SALT CREEK

SCALE: 1" = 10'-0"

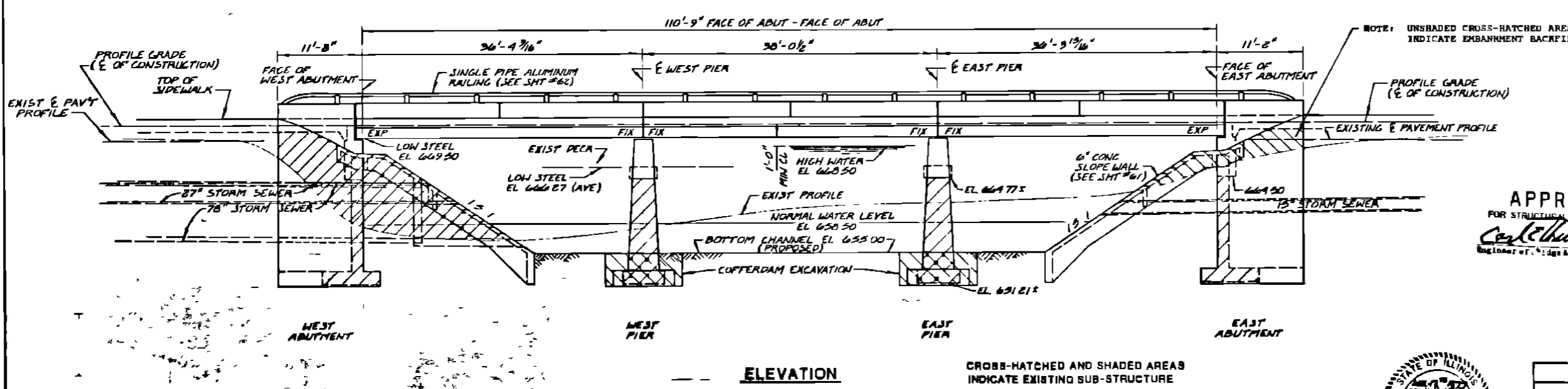
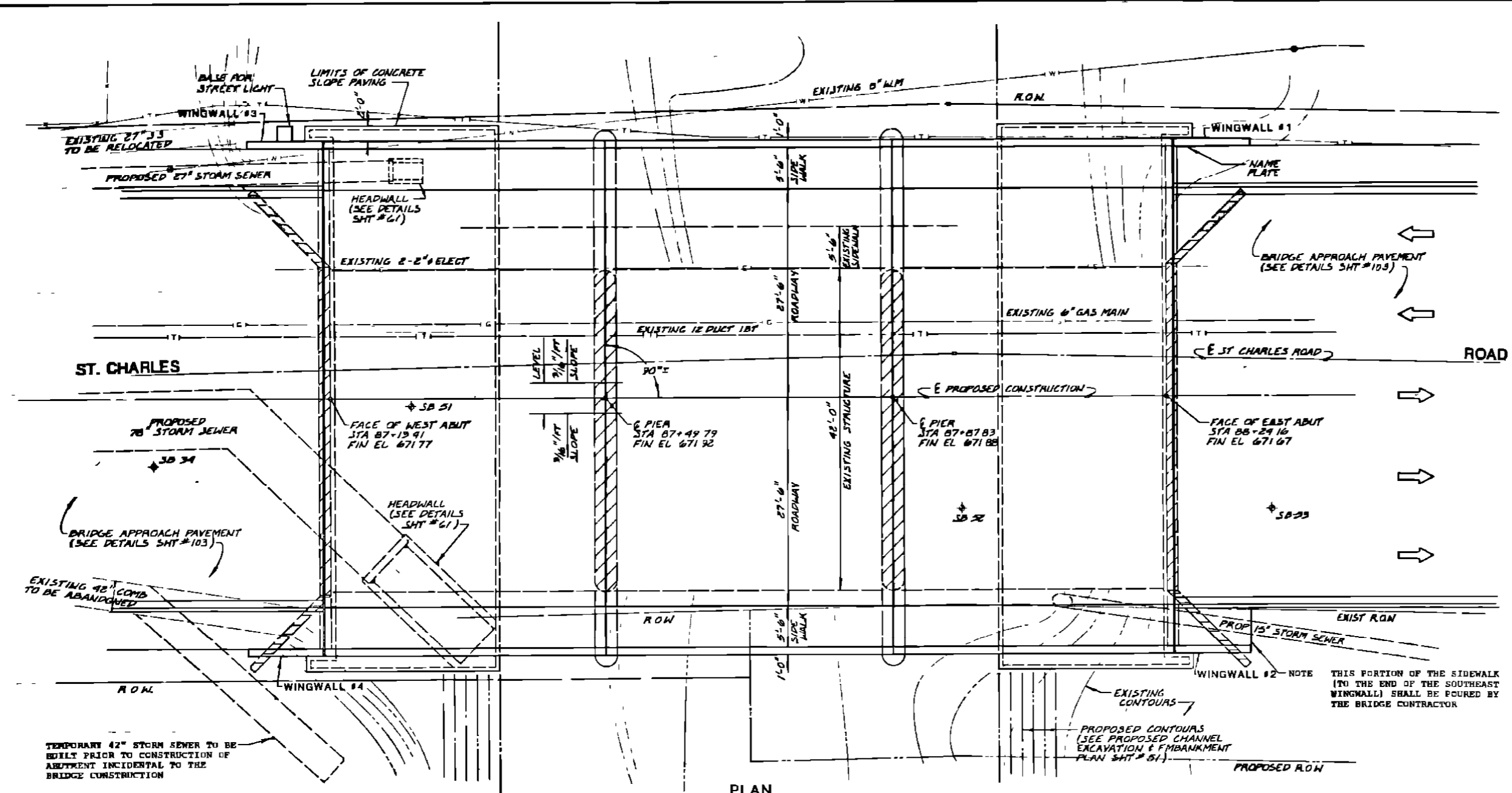
DATE: 12-13-77

DRAWN BY: D C N
 CHECKED BY: E M

APPROVED
 FOR STRUCTURAL USE ONLY
Carl E. Hummer
 Engineer of Bridges & Traffic Structures

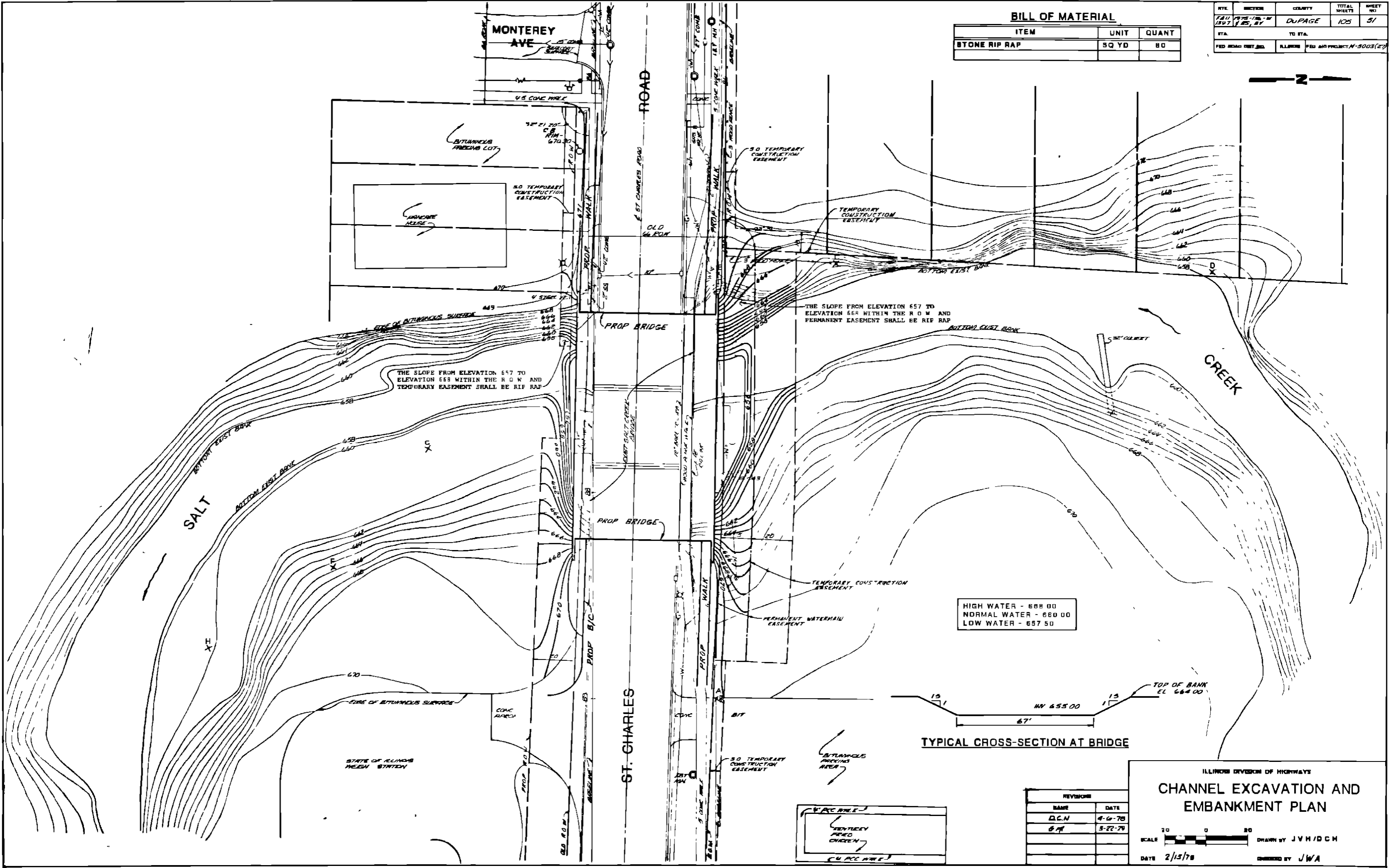


REVISIONS	
NAME	DATE
D.C.N.	2/14/78
G.M.	3-22-79



00104-48

00104



BILL OF MATERIAL

ITEM	UNIT	QUANT
STONE RIP RAP	SQ YD	80

HTC	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FALL 1975-1980	1257	DUPAGE	105	51
STA.	TO STA.			
FED ROAD DIST. NO. ILLINOIS FED AID PROJECT N-5003(27)				

HIGH WATER - 688.00
 NORMAL WATER - 660.00
 LOW WATER - 657.50

TYPICAL CROSS-SECTION AT BRIDGE

REVISION	
NAME	DATE
D.C.N.	4-6-78
B.M.	5-22-78

ILLINOIS DIVISION OF HIGHWAYS

CHANNEL EXCAVATION AND EMBANKMENT PLAN

SCALE 1" = 20'

DATE 2/15/78

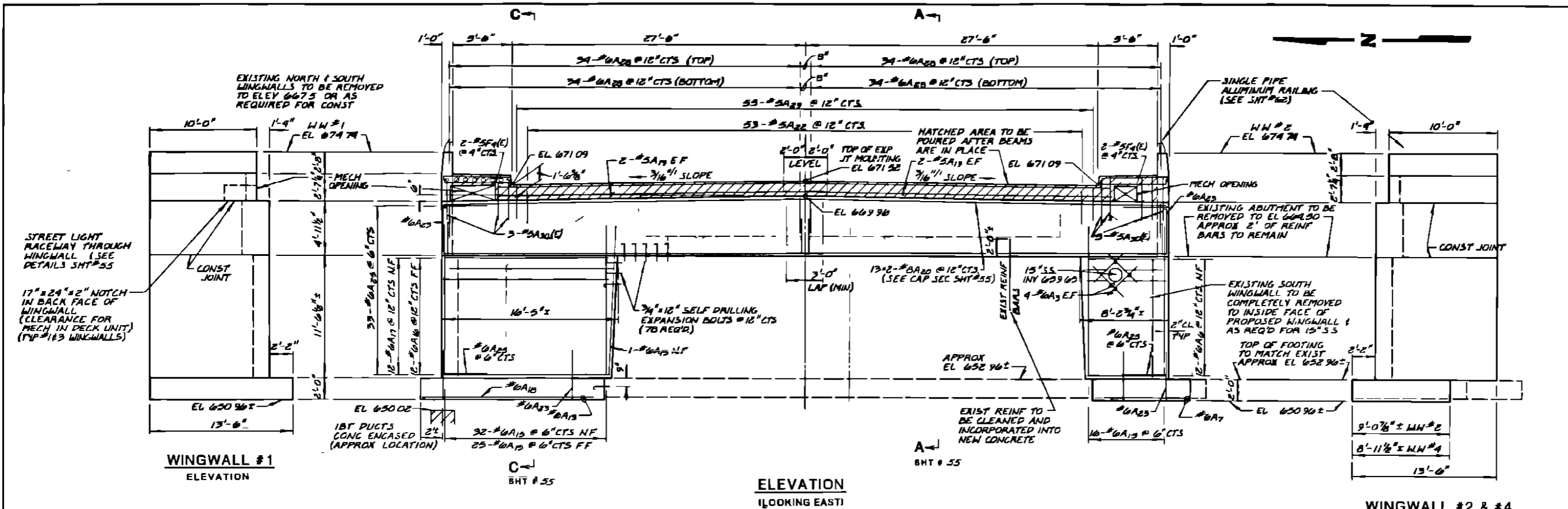
DRAWN BY J.V.H./D.C.H.

CHECKED BY J.W.A.

00104-49

00104

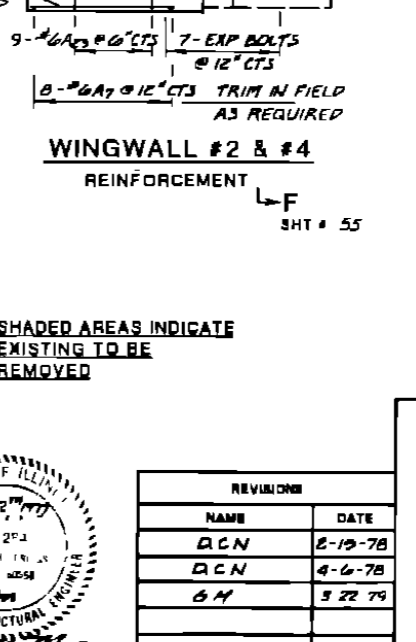
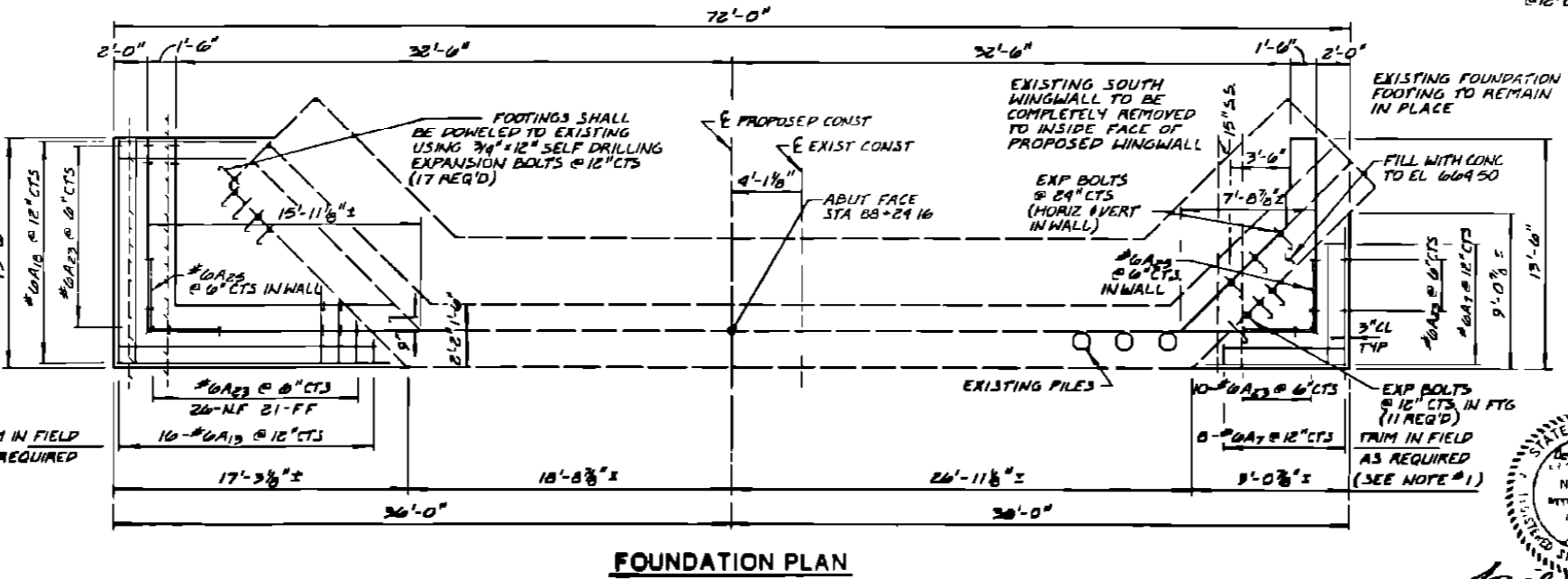
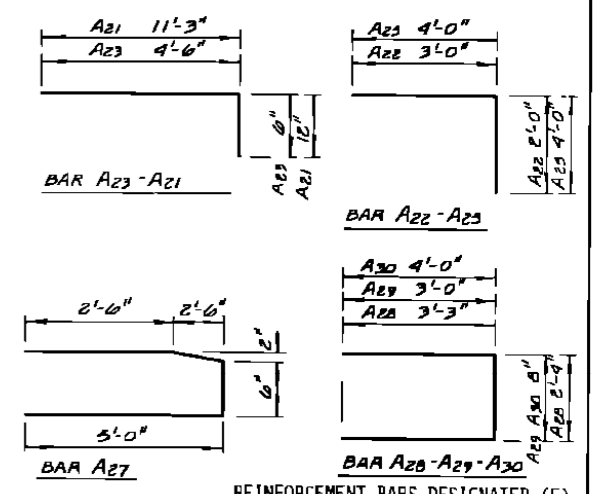
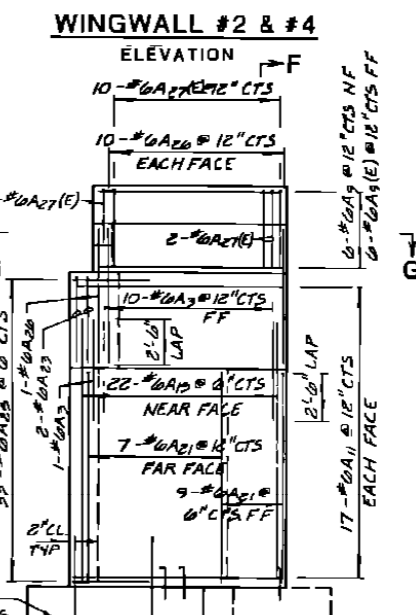
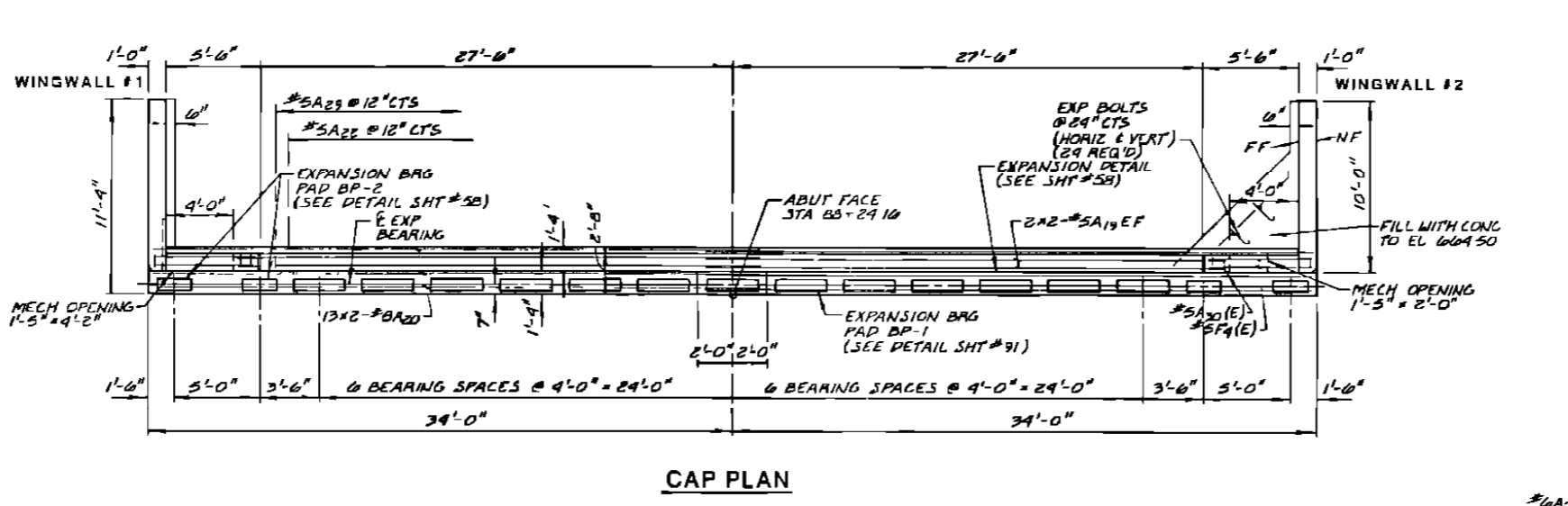
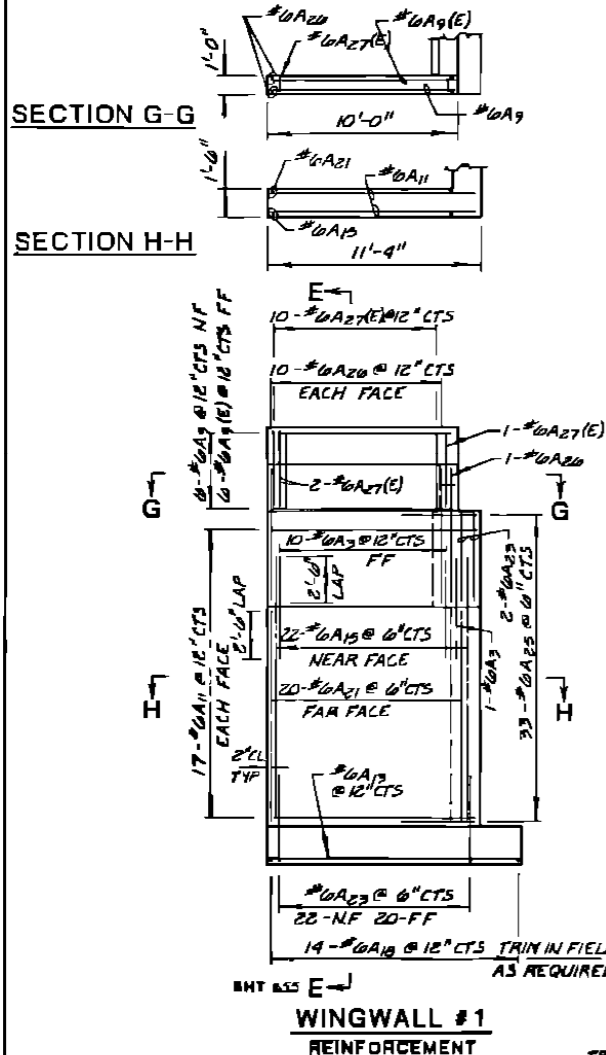
DATE	12-13-77	COUNTY	DUPAGE	TOTAL SHEETS	105	SHEET NO.	52
BY	W.F.S.	PROJECT	ST CHARLES ROAD BRIDGE				



BILL OF MATERIAL

BAR	NO	SIZE	LENGTH	SHAPE
A9(E)	12	#6	9'-5"	
A6	12	#6	7'-4"	
A7	16	#6	8'-3"	
A9	12	#6	9'-5"	
A11	68	#6	11'-0"	
A13	10	#6	13'-0"	
A15	118	#6	14'-0"	
A16	12	#6	14'-0"	
A17	12	#6	15'-0"	
A18	19	#6	16'-3"	
A19	8	#5	30'-6"	
A20	26	#8	35'-0"	
A21	36	#6	12'-3"	
A22	53	#5	3'-0"	
A23	112	#6	5'-0"	
A25	60	#6	8'-0"	
A26	44	#6	7'-8"	
A27(E)	20	#6	10'-0"	
A28	176	#6	8'-10"	
A29	53	#5	6'-8"	
A30(E)	6	#5	8'-8"	
A3	30	#6	5'-0"	
F4(E)	8	#5	7'-2"	SEE SHT #56

3/4"X12" SELF DRILLING EXPAN BOLTS	130
CLASS X CONCRETE	CU YDS 82
REINFORCEMENT BARS	POUNDS 13,515
REIN BARS (EPOXY COATED)	POUNDS 844



NOTES

- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING BRIDGE IF ANY SIGNIFICANT VARIATIONS ARE FOUND THE ENGINEER SHOULD BE NOTIFIED
- ALL BARS SHALL HAVE 2" OF COVER EXCEPT IN THE FOOTINGS WHERE 3" OF COVER SHALL BE MAINTAINED

SHADED AREAS INDICATE EXISTING TO BE REMOVED

REVISIONS

NAME	DATE
D.C.N.	2-19-78
D.C.N.	4-6-78
G.M.	9-22-78

ILLINOIS DIVISION OF HIGHWAYS

EAST ABUTMENT PLANS

ST CHARLES ROAD BRIDGE - SALT CREEK

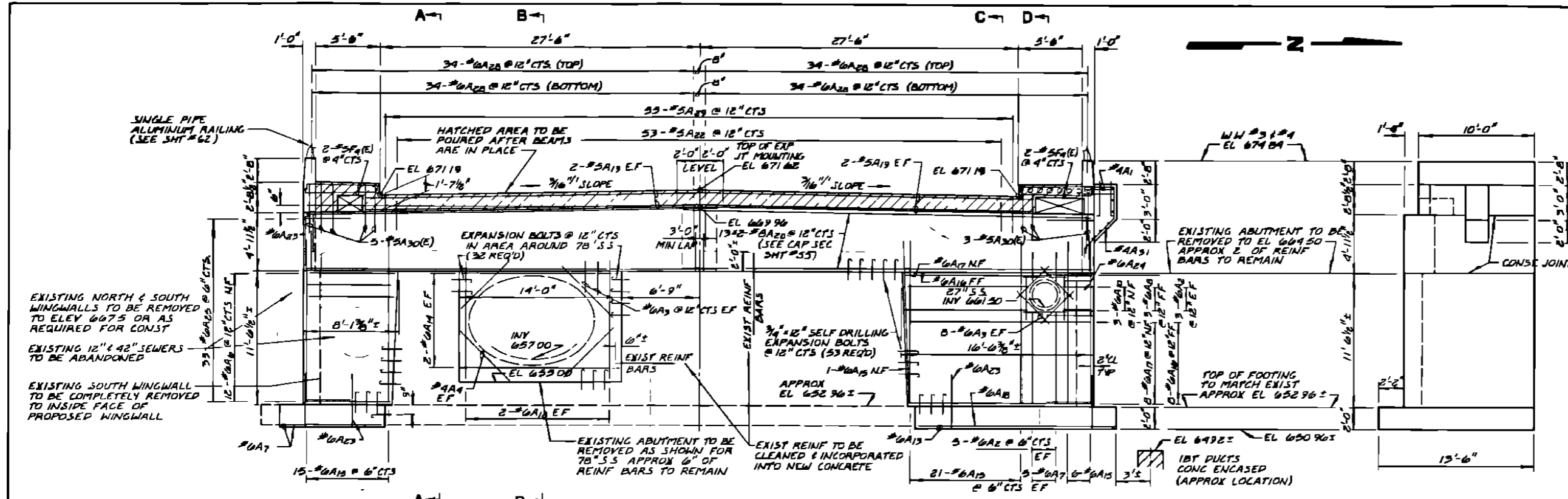
DRAWN BY J.Q.C.N.

CHECKED BY E.M.

DATE 12-13-77

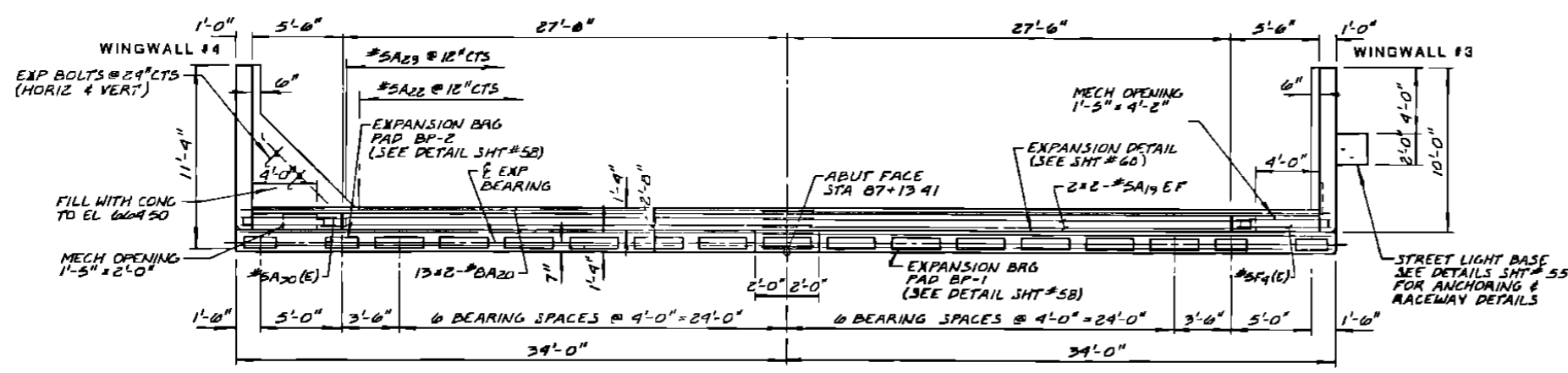
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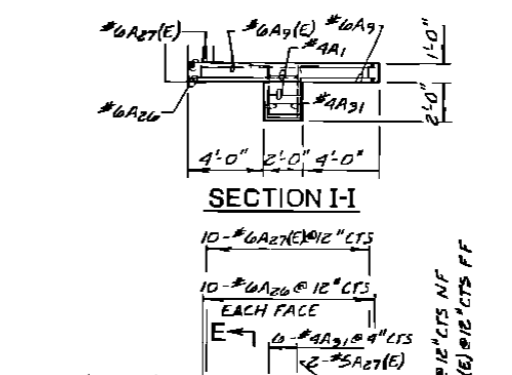


ELEVATION (LOOKING WEST)

WINGWALL #3 ELEVATION

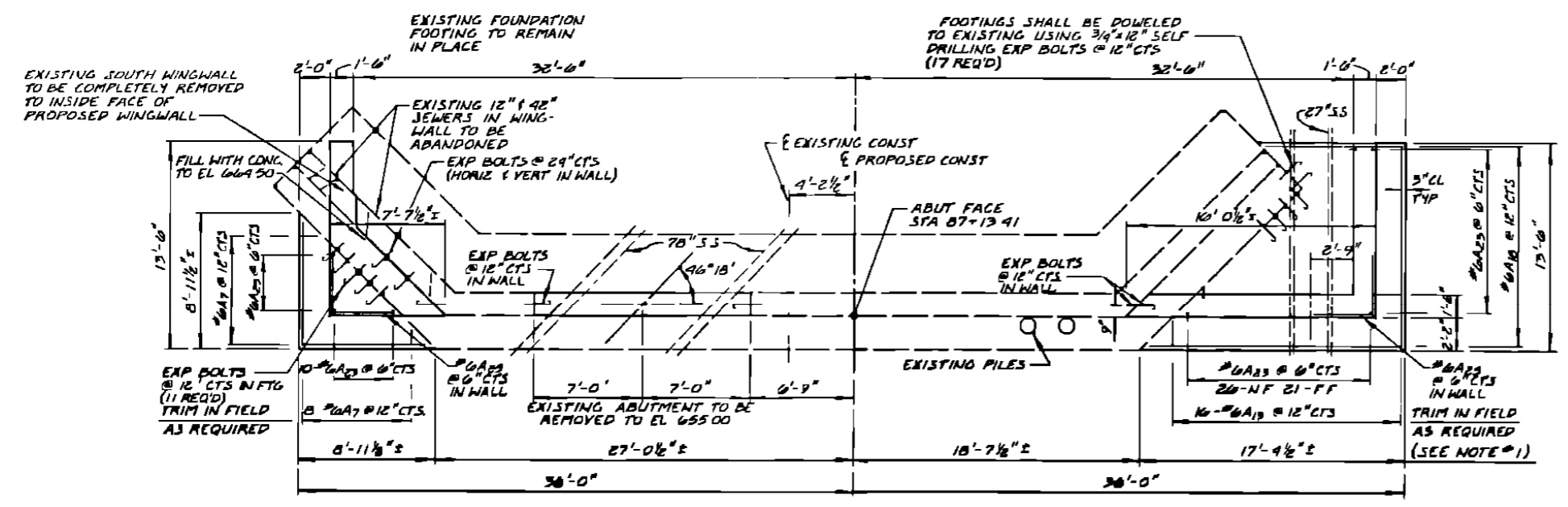


CAP PLAN



SECTION I-I

WINGWALL #3 REINFORCEMENT



FOUNDATION PLAN

DATE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
12-13-77	1873-196	DUPAGE	105	53
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT #1-2007(87)		

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED SEE SPECIAL PROVISIONS

BILL OF MATERIAL

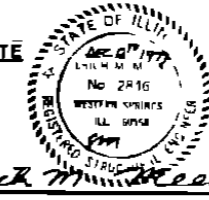
BAR	NO	SIZE	LENGTH	SHAPE
A1	8	#4	1'-0"	
A2	16	#6	5'-0"	
A3	40	#6	5'-0"	
A4	8	#4	6'-0"	
A5(E)	12	#6	9'-0"	
A6	12	#6	7'-0"	
A7	26	#6	8'-0"	
A8	3	#6	9'-0"	
A9	12	#6	9'-0"	
A10	3	#6	10'-0"	
A11	68	#6	11'-0"	
A12	4	#6	12'-0"	
A13	10	#6	13'-0"	
A14	4	#6	13'-0"	
A15	119	#6	14'-0"	
A16	9	#6	14'-0"	
A17	9	#6	15'-0"	
A18	19	#6	16'-0"	
A19	8	#5	30'-0"	
A20	26	#8	35'-0"	
A21	40	#6	12'-0"	
A22	53	#5	5'-0"	
A23	112	#6	5'-0"	
A24	6	#6	6'-0"	
A25	60	#6	8'-0"	
A26	49	#6	7'-0"	
A27(E)	26	#6	10'-0"	
A28	136	#6	8'-10"	
A29	55	#5	6'-0"	
A30(E)	6	#5	8'-0"	
A31	6	#4	10'-10"	
A32	2	#4	9'-4"	
F4(E)	8	#3	7'-2"	SEE SHT #56

3/4" X 12" SELF DRILLING EXPAN BOLTS	137
CLASS X CONCRETE	CU YDS 82
REINFORCEMENT BARS	POUNDS 14,294
REINF BARS (EPOXY COATED)	POUNDS 888

NOTES

- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING BRIDGE. IF ANY SIGNIFICANT VARIATIONS ARE FOUND THE ENGINEER SHOULD BE NOTIFIED.
- ALL BARS SHALL HAVE 2" OF COVER EXCEPT IN THE FOOTINGS WHERE 3" OF COVER SHALL BE MAINTAINED.

SHADED AREAS INDICATE EXISTING TO BE REMOVED



REVISIONS	
NAME	DATE
DCN	2-17-78
GM	3-22-79

ILLINOIS DIVISION OF HIGHWAYS

WEST ABUTMENT PLANS

ST CHARLES ROAD BRIDGE - SALT CREEK

DRAWN BY D.C.M.

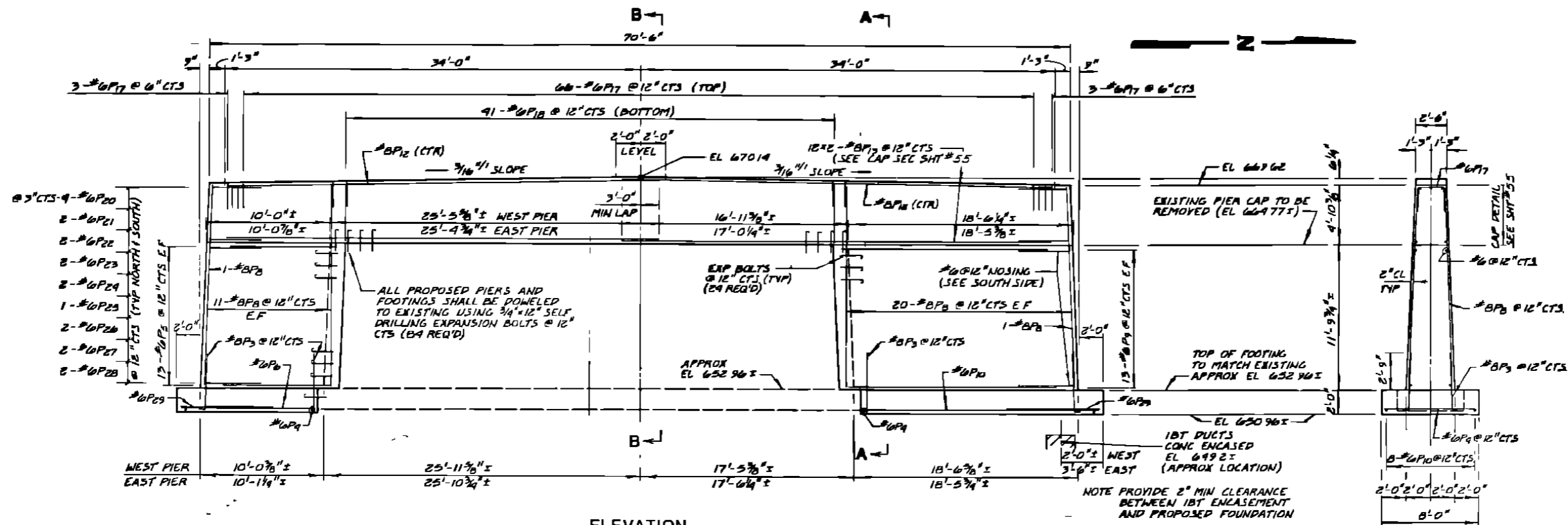
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DATE: 12-13-77

00104-51

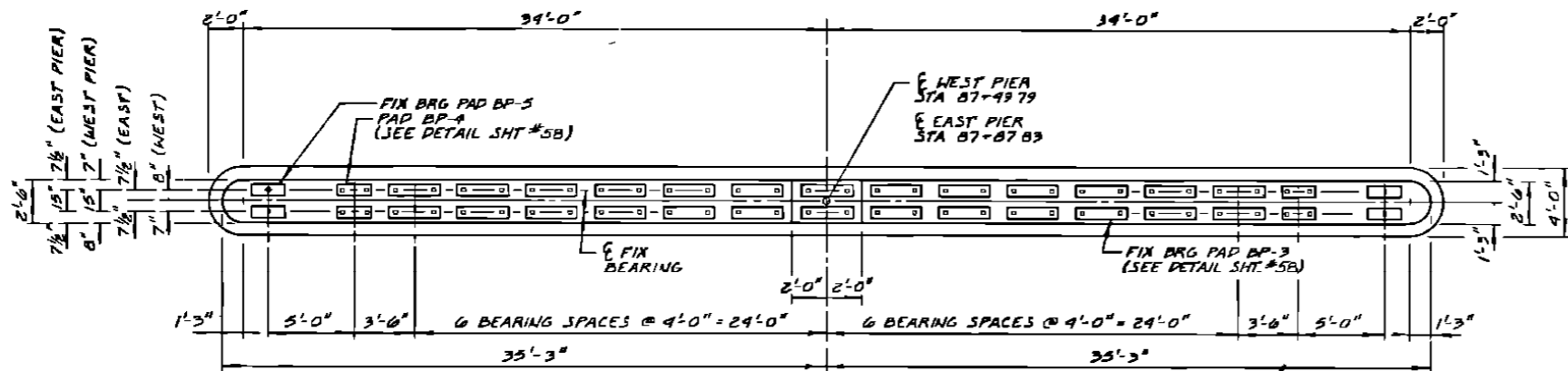
00104

RTL	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
PAV	1975-1980	DUPAGE	105	54
1977	WTR, BY			
STA.	TO STA.			
FED ROAD DIST NO	ILLINOIS	FED AID PROJECT #	3003(27)	

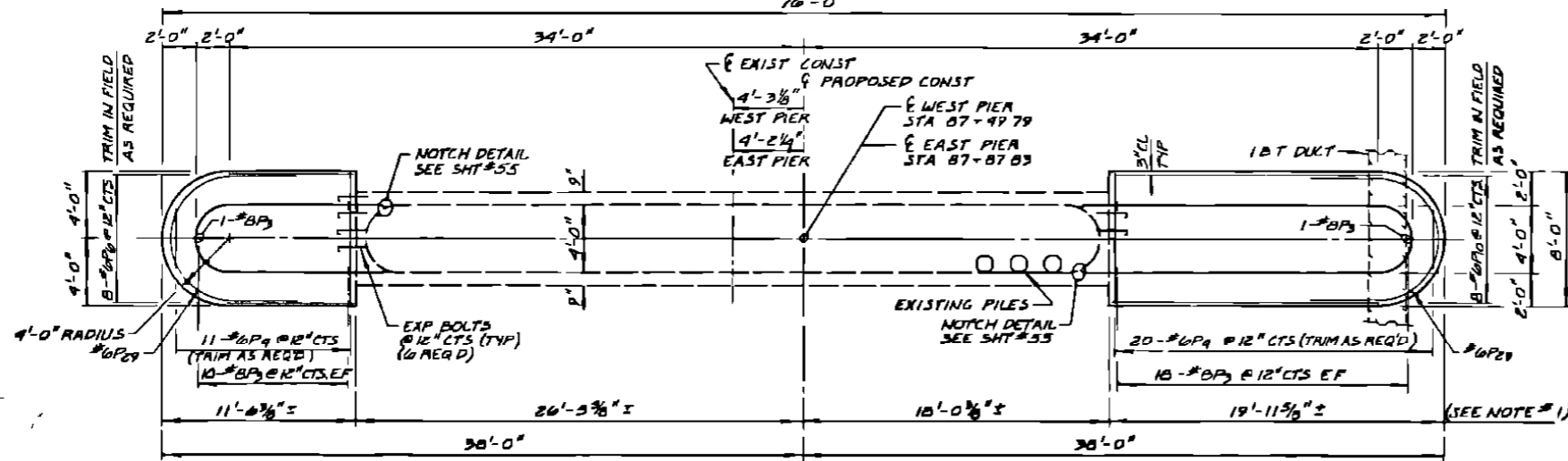


ELEVATION
(LOOKING WEST)

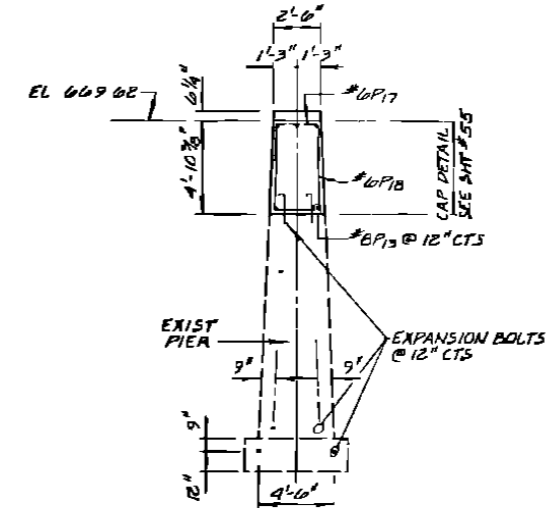
SECTION A-A



CAP PLAN



FOUNDATION PLAN



SECTION B-B

EAST AND WEST PIERS
BILL OF MATERIAL

BAR	NO	SIZE	LENGTH	SHAPE
P3	110	#8	5'-0"	—
P4	82	#6	7'-0"	—
P5	32	#6	8'-0"	—
P6	10	#6	11'-0"	—
P8	159	#8	16'-9"	—
P9	32	#6	17'-0"	—
P10	10	#6	19'-0"	—
P12	9	#8	36'-9"	—
P13	40	#8	35'-0"	—
P17	149	#6	7'-2"	—
P18	82	#6	11'-8"	—
P20	10	#6	9'-4"	—
P21	8	#6	9'-8"	—
P22	8	#6	10'-0"	—
P23	8	#6	10'-2"	—
P24	8	#6	10'-9"	—
P25	4	#6	10'-9"	—
P26	8	#6	11'-0"	—
P27	8	#6	11'-3"	—
P28	8	#6	11'-6"	—
P29	4	#6	19'-9"	—

3/4"X12" SELF DRILLING EXPAN. BOLTS	288
CLASS X CONCRETE	CU YDS 188
REINFORCEMENT BARS	POUNDS 19 803

BAR P3	13"
BAR P4	14"
BAR P5	15"
BAR P6	16"
BAR P7	17"
BAR P8	18"
BAR P9	19"
BAR P10	20"
BAR P11	21"
BAR P12	22"
BAR P13	23"
BAR P14	24"
BAR P15	25"
BAR P16	26"
BAR P17	27"
BAR P18	28"
BAR P19	29"
BAR P20	30"
BAR P21	31"
BAR P22	32"
BAR P23	33"
BAR P24	34"
BAR P25	35"
BAR P26	36"
BAR P27	37"
BAR P28	38"
BAR P29	39"
BAR P30	40"

NOTES

- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING BRIDGE. IF ANY SIGNIFICANT VARIATIONS ARE FOUND THE ENGINEER SHOULD BE NOTIFIED.
- ALL BARS SHALL HAVE 2" OF COVER EXCEPT IN THE FOOTINGS WHERE 3" OF COVER SHALL BE MAINTAINED.



REVISIONS	NAME	DATE
1	DCN	8-10-78
2	DCN	8-6-78
3	GT	3-22-79

ILLINOIS DIVISION OF HIGHWAYS

EAST & WEST PIER PLANS

ST CHARLES ROAD BRIDGE - SALT CREEK

DRAWN BY: D.C.N.

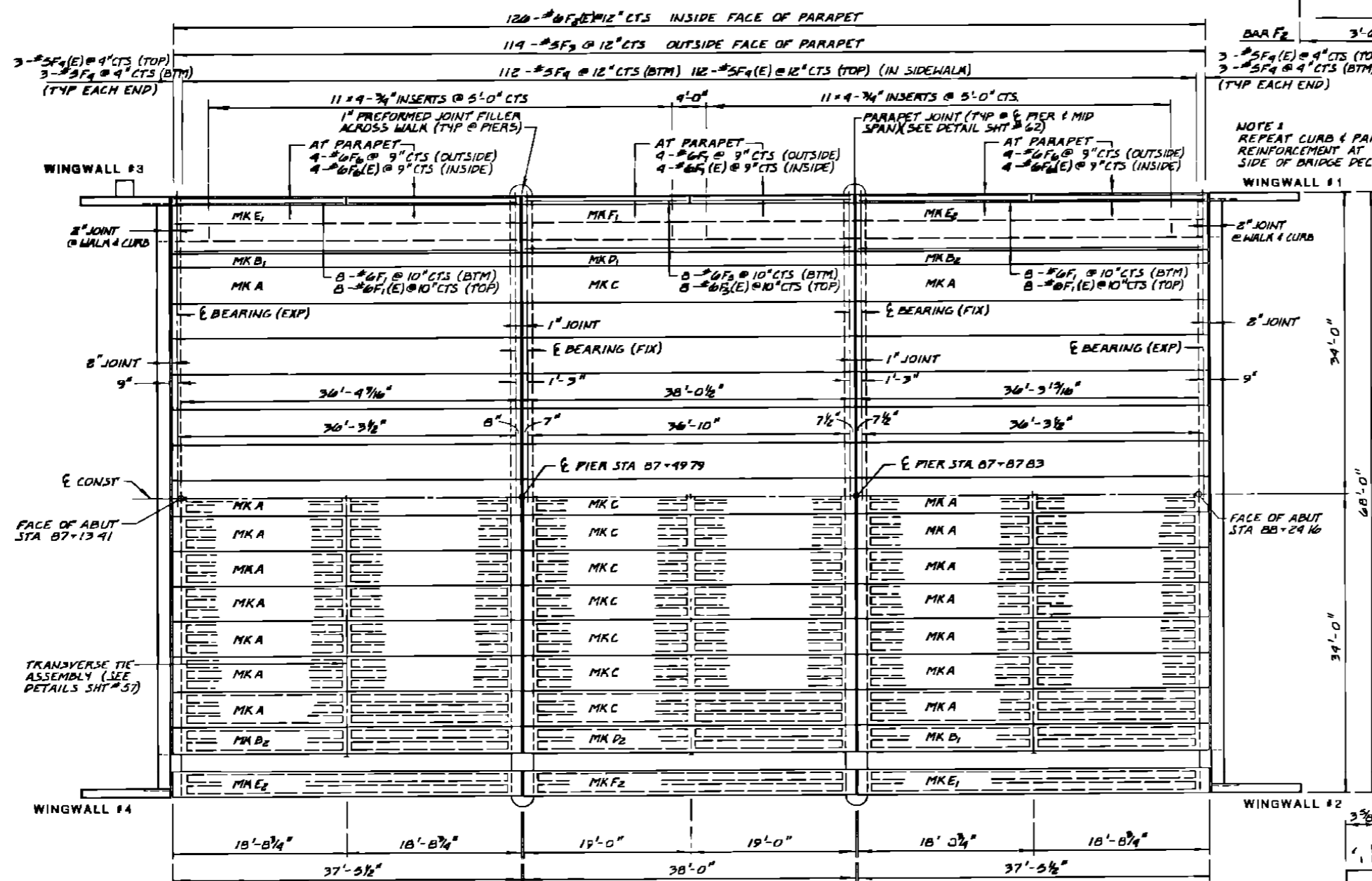
CHECKED BY: E.M.

DATE: 12-13-77

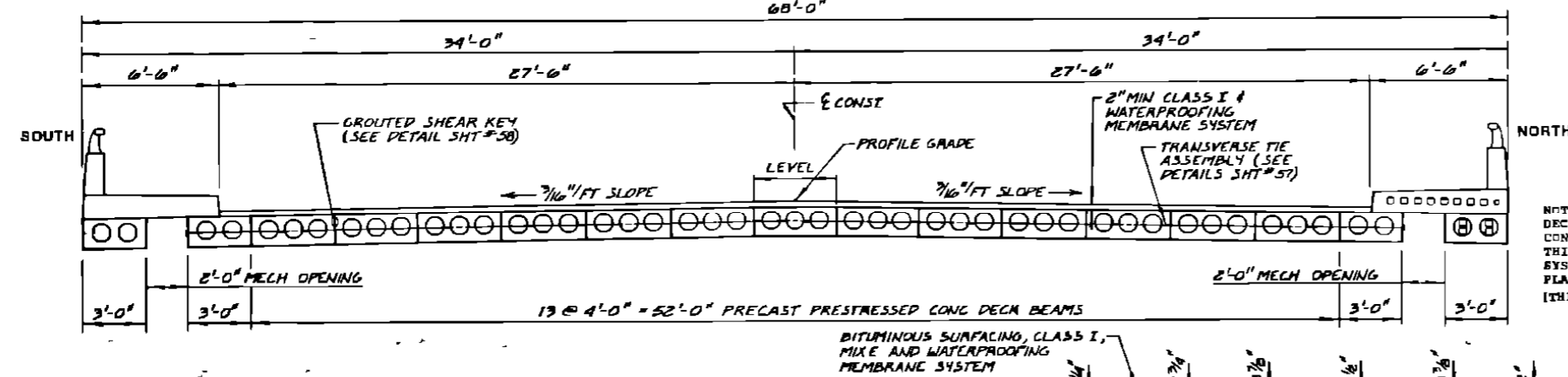
00104-52

00104

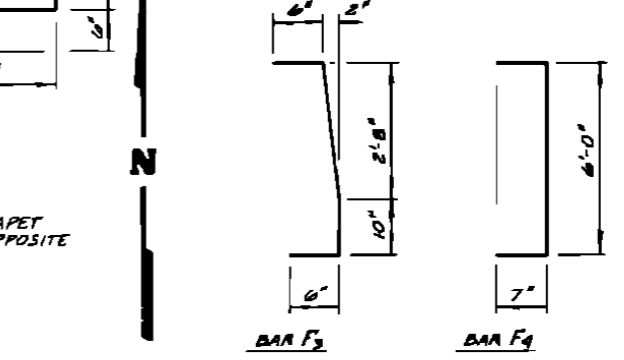
RTS	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
1507	1808-1809	DUPAGE	105	54
PFD ROAD DIST NO		ILLINOIS	FED AID PROJECT M-3003 (27)	



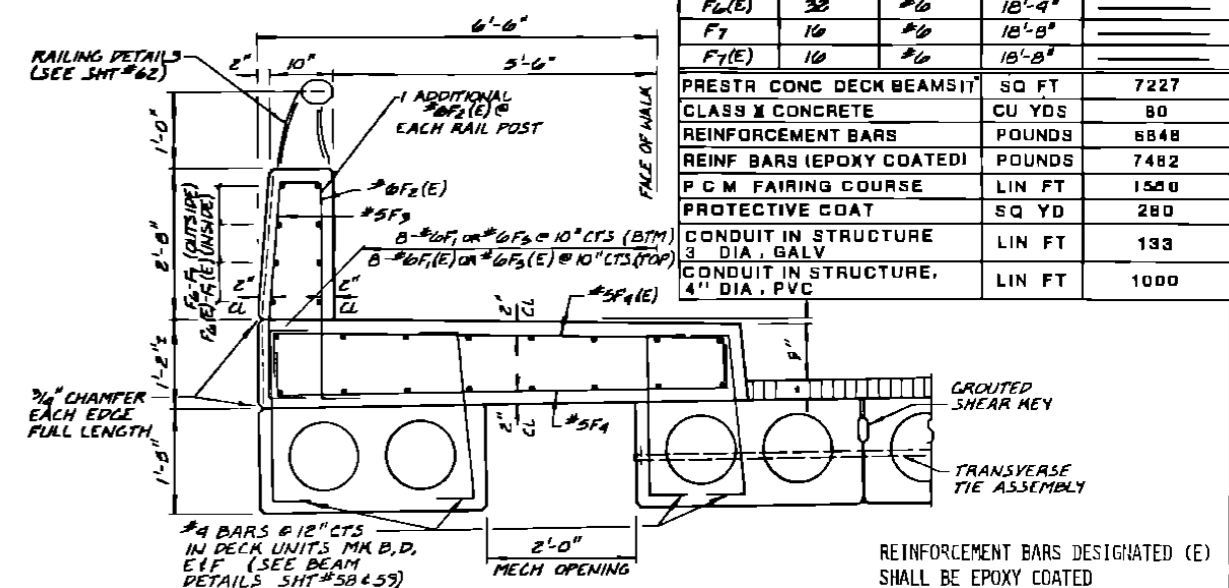
DECK FRAMING PLAN



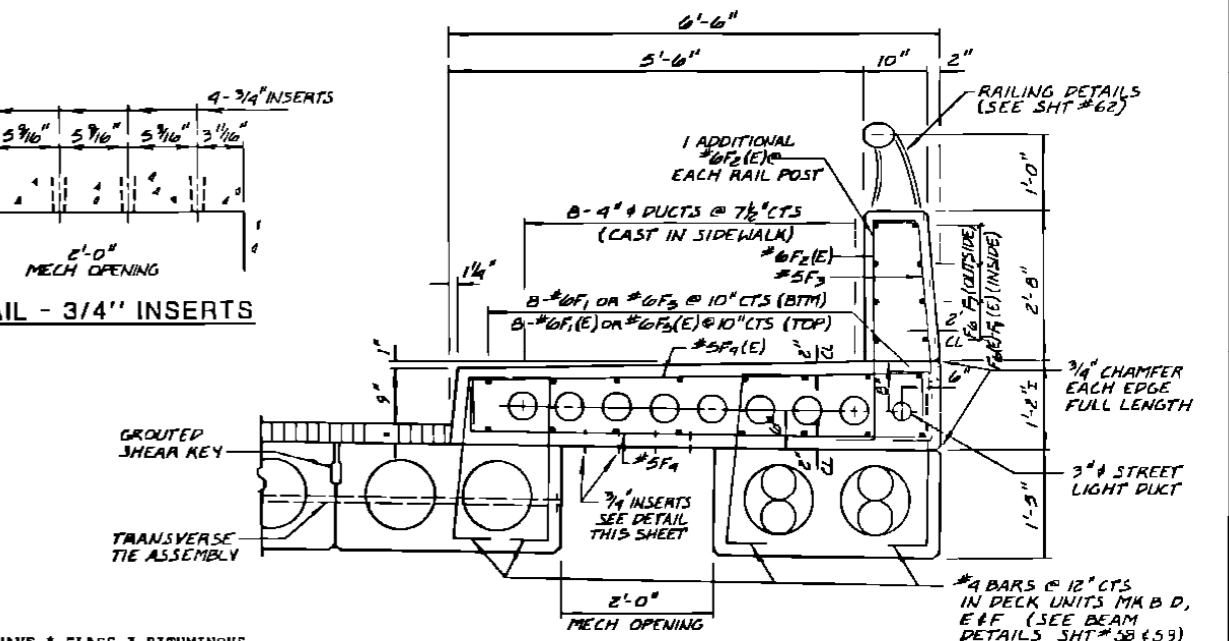
CROSS SECTION



DETAIL - 3/4" INSERTS



SOUTH CURB SECTION



NORTH CURB SECTION

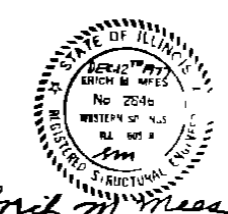
NOTE TO HAVE * CLASS I BITUMINOUS CONC WEARING SURFACE INCLUDING THICKNESS OF WATERPROOFING MEMBRANE SYSTEM FOR PROPER THICKNESS (*) SEE PLAN OR SURFACE GRADES SHT #160 (THICKNESS VARIES 2" TO 4 1/4")

BILL OF MATERIAL

BAR NO	NO	SIZE	LENGTH	SHAPE
F1	38	#6	37'-0"	
F2(E)	232	#6	4'-6"	
F3	228	#5	4'-0"	
F4	238	#5	7'-2"	
F1(E)	38	#6	37'-0"	
F4(E)	238	#5	7'-2"	
F3	10	#6	37'-8"	
F3(E)	10	#6	37'-8"	
F6	38	#6	18'-9"	
F6(E)	38	#6	18'-9"	
F7	10	#6	18'-8"	
F7(E)	10	#6	18'-8"	

PRESTR CONC DECK BEAMS	SQ FT	7227
CLASS II CONCRETE	CU YDS	80
REINFORCEMENT BARS	POUNDS	8848
REINF BARS (EPOXY COATED)	POUNDS	7482
P C M FAIRING COURSE	LIN FT	1580
PROTECTIVE COAT	SQ YD	280
CONDUIT IN STRUCTURE 3" DIA. GALV	LIN FT	133
CONDUIT IN STRUCTURE 4" DIA. PVC	LIN FT	1000

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED SEE SPECIAL PROVISIONS



REVISIONS

NAME	DATE
DCN	2-14-78
DCN	4-6-78
GH	3-22-79

ILLINOIS DIVISION OF HIGHWAYS

DECK FRAMING PLAN & DETAILS

ST CHARLES ROAD BRIDGE - SALT CREEK

DATE 12-13-77

DRAWN BY DCN
CHECKED BY EM

00104-54

Tab 9

Maintenance and Monitoring

No Documents Required

Tab 10

Security

- **Estimate of Probable Construction Cost**
- **No Performance Security Required as this is a public project using local and federal funding**

Project Cost Estimate
St. Charles Road Bridge Improvements over Salt Creek
Village of Villa Park

DESCRIPTION	UNIT	UNIT COST	QTY	TOTAL COST	FEDERAL SHARE (80%)	LOCAL MATCH (20%)	TOTAL COST	
MOBILIZATION	LSUM	\$ 50,000.00	1	\$ 50,000.00	\$ 40,000.00	\$ 10,000.00	\$ 50,000.00	
TRAFFIC CONTROL AND PROTECTION	LSUM	\$ 220,000.00	1	\$ 220,000.00	\$ 176,000.00	\$ 44,000.00	\$ 220,000.00	
EROSION CONTROL	LSUM	\$ 50,000.00	1	\$ 50,000.00	\$ 40,000.00	\$ 10,000.00	\$ 50,000.00	
EXCAVATION (INCL. CCDD DISPOSAL COMPLIANCE)	LSUM	\$ 75,000.00	1	\$ 75,000.00	\$ 60,000.00	\$ 15,000.00	\$ 75,000.00	
CURB AND GUTTER REMOVAL	LF	\$ 6.50	455	\$ 2,957.50	\$ 2,366.00	\$ 591.50	\$ 2,957.50	
DRIVEWAY PAVEMENT REMOVAL	SY	\$ 32.00	35	\$ 1,120.00	\$ 896.00	\$ 224.00	\$ 1,120.00	
SIDEWALK REMOVAL	SF	\$ 3.00	2,205	\$ 6,615.00	\$ 5,292.00	\$ 1,323.00	\$ 6,615.00	
HMA SURFACE REMOVAL, 2 1/4"	SY	\$ 12.00	785	\$ 9,420.00	\$ 7,536.00	\$ 1,884.00	\$ 9,420.00	
HMA SURFACE REMOVAL, VARIABLE DEPTH	SY	\$ 64.00	435	\$ 27,840.00	\$ 22,272.00	\$ 5,568.00	\$ 27,840.00	
FENCE REMOVAL AND RELOCATION	LF	\$ 75.00	205	\$ 15,375.00	\$ 12,300.00	\$ 3,075.00	\$ 15,375.00	
AGG. BASE COURSE, TY B, 4"	SY	\$ 18.00	375	\$ 6,750.00	\$ 5,400.00	\$ 1,350.00	\$ 6,750.00	
HMA SURFACE COURSE, MIX "D", N70, 1.5"	TON	\$ 180.00	123	\$ 22,218.00	\$ 17,774.40	\$ 4,443.60	\$ 22,218.00	
LEVELING BINDER (MACHINE METHOD), N70, 0.75"	TON	\$ 150.00	62	\$ 9,257.50	\$ 7,406.00	\$ 1,851.50	\$ 9,257.50	
PCC SIDEWALK, 5"	SF	\$ 12.00	2,100	\$ 25,200.00	\$ 20,160.00	\$ 5,040.00	\$ 25,200.00	
CURB AND GUTTER (SPECIAL)	LF	\$ 55.00	455	\$ 25,025.00	\$ 20,020.00	\$ 5,005.00	\$ 25,025.00	
ENTRANCE MODIFICATION	EA	\$ 3,000.00	2	\$ 6,000.00	\$ 4,800.00	\$ 1,200.00	\$ 6,000.00	
PROPERTY ACQUISITION (TEMPORARY EASEMENT)	AC	\$ 300,000.00	0.20	\$ 58,539.94	\$ 46,831.96	\$ 11,707.99	\$ 58,539.94	
STORM SEWERS, CLASS A, TYPE 2 12"	LF	\$ 75.00	6	\$ 450.00	\$ 360.00	\$ 90.00	\$ 450.00	
INLETS, TYPE A, TYPE 11 FRAME AND GRATE	EA	\$ 1,400.00	1	\$ 1,400.00	\$ 1,120.00	\$ 280.00	\$ 1,400.00	
MANHOLES TO BE ADJUSTED	EA	\$ 400.00	6	\$ 2,400.00	\$ 1,920.00	\$ 480.00	\$ 2,400.00	
INLETS TO BE ADJUSTED	EA	\$ 300.00	1	\$ 300.00	\$ 240.00	\$ 60.00	\$ 300.00	
PROPOSED STORMSEWER CONNECTION TO EXISTING MANHOLE	EA	\$ 500.00	1	\$ 500.00	\$ 400.00	\$ 100.00	\$ 500.00	
BRIDGE DECK REMOVAL	SF	\$ 12.00	7,250	\$ 87,000.00	\$ 69,600.00	\$ 17,400.00	\$ 87,000.00	
BRIDGE DECK REPLACEMENT	SF	\$ 72.00	7,700	\$ 554,400.00	\$ 443,520.00	\$ 110,880.00	\$ 554,400.00	
CONCRETE WEARING SURFACE, 5"	SY	\$ 180.00	860	\$ 154,800.00	\$ 123,840.00	\$ 30,960.00	\$ 154,800.00	
ABUMENT WINGWALL RECONSTRUCTION (REMOVAL AND REPLACEMENT)	CY	\$ 1,500.00	10	\$ 15,000.00	\$ 12,000.00	\$ 3,000.00	\$ 15,000.00	
BRIDGE SIDEWALK, PARAPET (REMOVAL AND REPLACEMENT)	CY	\$ 1,080.00	80	\$ 86,400.00	\$ 69,120.00	\$ 17,280.00	\$ 86,400.00	
BRIDGE RAILING (REMOVAL AND REPLACEMENT)	LF	\$ 200.00	230	\$ 46,000.00	\$ 36,800.00	\$ 9,200.00	\$ 46,000.00	
APPROACH PAVEMENT	LSUM	\$ 35,000.00	1	\$ 35,000.00	\$ 28,000.00	\$ 7,000.00	\$ 35,000.00	
SCOUR COUNTERMEASURES	LSUM	\$ 559,000.00	1	\$ 559,000.00	\$ 447,200.00	\$ 111,800.00	\$ 559,000.00	
				SUB-TOTAL: \$	2,153,967.94	\$ 1,723,174.36	\$ 430,793.59	\$ 2,153,967.94
				CONTINGENCY (20%) \$	430,794.00	\$ 344,635.00	\$ 86,159.00	\$ 430,794.00
				TOTAL CONSTRUCTION COST: \$	2,584,762.00	\$ 2,067,810.00	\$ 516,953.00	\$ 2,584,762.00

Prepared by: V3 Companies of Illinois, Ltd.
Date: March 7, 2017

Note:

This Engineer's Opinion of Probable Cost is based upon Phase I documents for the St. Charles Road Bridge Improvements, prepared by V3 Companies. Since V3 Companies has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, this Opinion of Probable Construction Costs is made based on V3 Companies' best judgment as an experienced and qualified professional engineer, familiar with the construction industry; however, V3 Companies can not and does not guarantee that proposals, bids or actual Construction Costs will not vary from the Opinions of Probable Construction Costs prepared by V3 Companies.

Tab 11

Variance

No Documents Required